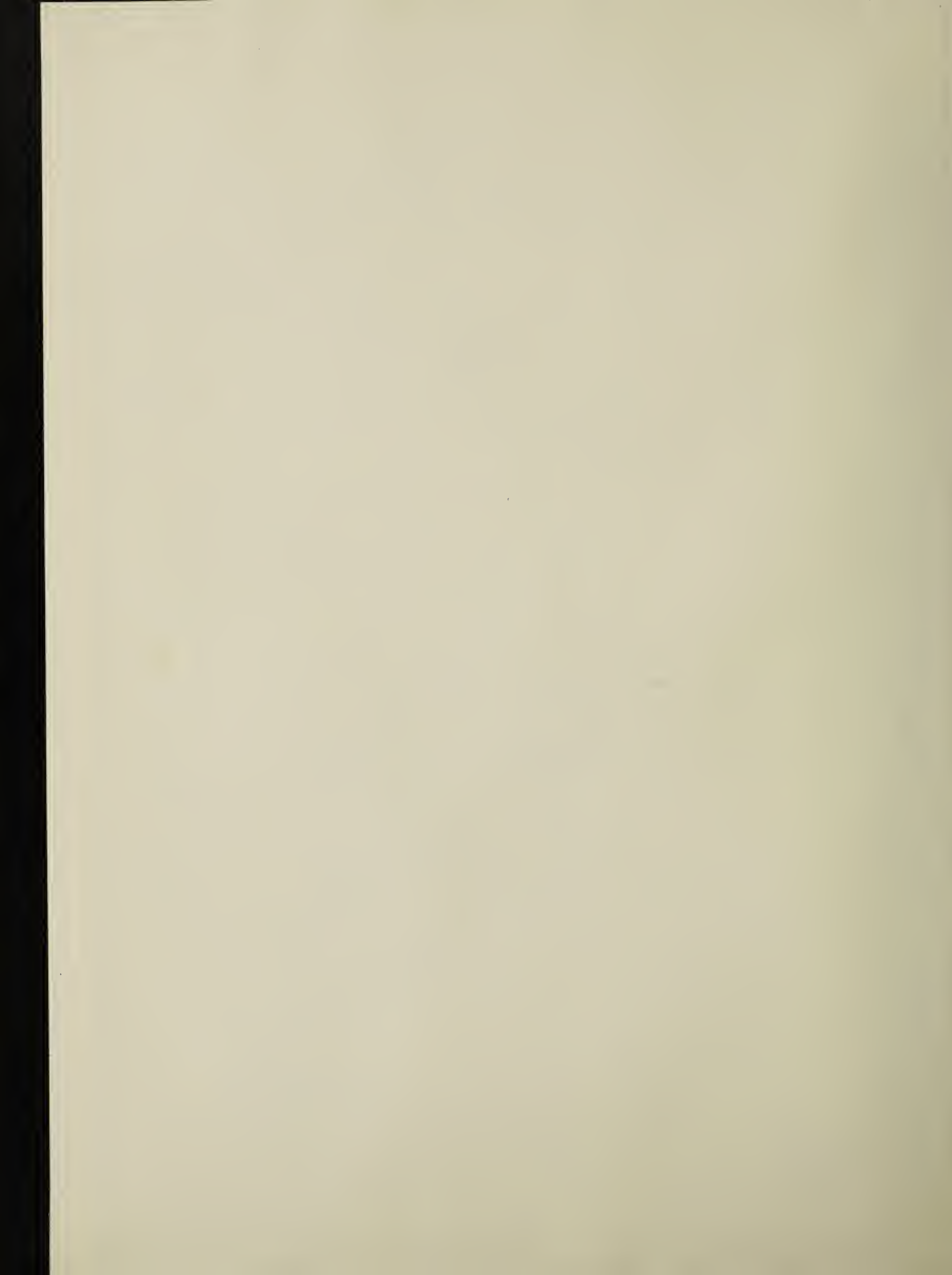


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# THE NEW **Outlook** FOR THE BLIND

JANUARY  
1976  
Volume 70  
Number 1

## METRIC CONVERSION TABLE SIMPLE UNITS

### Length

Cm.	=	.3937 Inches	Inch	=	2.54 Cm.
Metre	=	3.28 Feet	Foot	=	.305 Metre
Metre	=	1.09 Yards	Yard	=	.914 Metre
Kilom.	=	.621 Mile	Mile	=	1.61 Kiloms.

### Area

Sq. Cm.	=	.155 Sq. Inches	Sq. Inch	=	6.452 Sq. Cms.
Sq. Metre	=	10.764 Sq. Ft.	Sq. Foot	=	.0929 Sq. Metres
Sq. Metre	=	1.196 Sq. Yards	Sq. Yard	=	.836 Sq. Metres
Sq. Kilom.	=	.386 Sq. Miles	Sq. Mile	=	2.59 Sq. Kiloms.

### Volume

Cu. Cm.	=	.061 Cu. Inches	Cu. Inch	=	16.4 Cu. Cms.
Cu. Metre	=	35.29 Cu. Feet	Cu. Foot	=	.028 Cu. Metres
Cu. Metre	=	1.308 Cu. Yards	Cu. Yard	=	.765 Cu. Metres

### Capacity

Litre	=	.0353 Cu. Ft.	Cu. Foot	=	28.32 Litres
Litre	=	.2642 Gal. (U.S.)	Gal.	=	3.785 Litres
Litre	=	61.023 Cu. Inches	Cu. Inch	=	.0164 Litre
(Litre = 2.202 Lbs. of Water at 62° Fahrenheit)					

### Weight

Gram	=	15.432 Grains	Grain	=	.0648 Gram
Gram	=	0.353 Ounce	Ounce	=	28.35 Grams
Kilogram	=	2.205 Lbs.	Lb.	=	.454 Kilogram
Kilogram	=	.0011 Ton	Ton	=	907.03 Kilograms
Tonne	=	1.1025 Tons	Ton	=	.907 Tonne

(Ton = 2000 Lbs.)

THE NEW FOR THE BLIND

# Outlook

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# Metrics for Visually Impaired Persons

ELIZABETH M. LENNON

JOHN L. FEIRER

WILLIAM K. PURDY

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■ Metric measurements are going to be the way of life in the not-so-distant future for the residents of the United States, just as they have been for 92 percent of the world's population since the development of the system in France in 1793. Visually impaired consumers, homemakers, hobbyists, and students, just as all others, must be prepared for a future of grams, metres, litres and degrees Celsius. No longer will these units be used only for medical measurements, foreign car gauges, and obtuse scientific instruments. The simple metric system, with its direct relationship between length, volume, and weight and with all units of ten, will be the predominant language of measurement in this country within the next ten to 15 years.

Most people dislike changes and a major problem in converting to a new system of measurement will be the changing of our customary English units of inches and pounds to metric units. Memorizing long conversion tables is neither easy nor necessary. A more appropriate way to learn the new system is to use it—to make it a part of our daily lives in every possible situation. By learning only the basic units as they apply at any given time and not trying to absorb the whole system at once, the task will not be so formidable. The basic unit of length is the metre (m); for volume, the litre (l or l); and for mass, the kilogram (kg). All other units that one will need to use in measurement are either multiples or divisions of these by ten, 100, or 1,000.

**THE CENTER FOR METRIC EDUCATION** To make the transition from our customary system of measures to metrics realistic and practical for the visually impaired, the Center for Metric Education at Western Michigan University, Kalamazoo, under a grant (Metric Conversion in Vocational Education, OEG-O-74-1661) from the United States Office of Education, has developed, adapted, or located various aids and equipment that can be used to teach those who must depend on touch rather than sight in making measurements. By using these devices and the accompanying instruments, the gourmet cook, the seamstress, the wood or metal worker who is blind can make an easy changeover from our present English system of measure to the simple metric system.

To compare the metre, the basic unit of length in the metric system, with the yard, two bars are used. (See Figure 1 for various linear measurement devices.) It is readily apparent that the metre is about one tenth (3.17 inches) longer than the yard. Since all units are multiples of ten, another metre stick is divided by tangible grooves into ten parts called decimetres (dm), each about four inches long. Still another bar is separated into 100 smaller units known as centimetres (cm). Centimetres, in turn, are divided into ten parts each, which are known as millimetres (mm). Thus, there are 1,000 millimetres in a metre ( $10 \times 10 \times 10$ ). For everyday use in measuring cloth and body parts, the centimetre can be used. However, the millimetre is the unit used for all industrial work. It is about the thickness of a dime or  $1/25$  of an inch.

An abacus is available to demonstrate the length of a millimetre. When ten millimetre rods are brought together, we have a centimetre of 0.4 inches—a little less than half an inch. For the shop craftsman an aluminum rod, threaded to millimetres, is available for either measuring or marking. One complete turn of a nut, fitted to the rod equals one millimetre. Ten turns equals a centimetre, marked by a single sharp thread. A second nut can be used to set a desired dimension.

**Abstract:** *The Center for Metric Education at Western Michigan University, under a U.S. Office of Education grant entitled "Metric Conversion in Vocational Education," has developed a number of aids to be used by visually impaired persons in learning and using the metric system. Linear measurements (and their relationships to volume and weight) for general use and measures commonly used in the kitchen have been emphasized.*

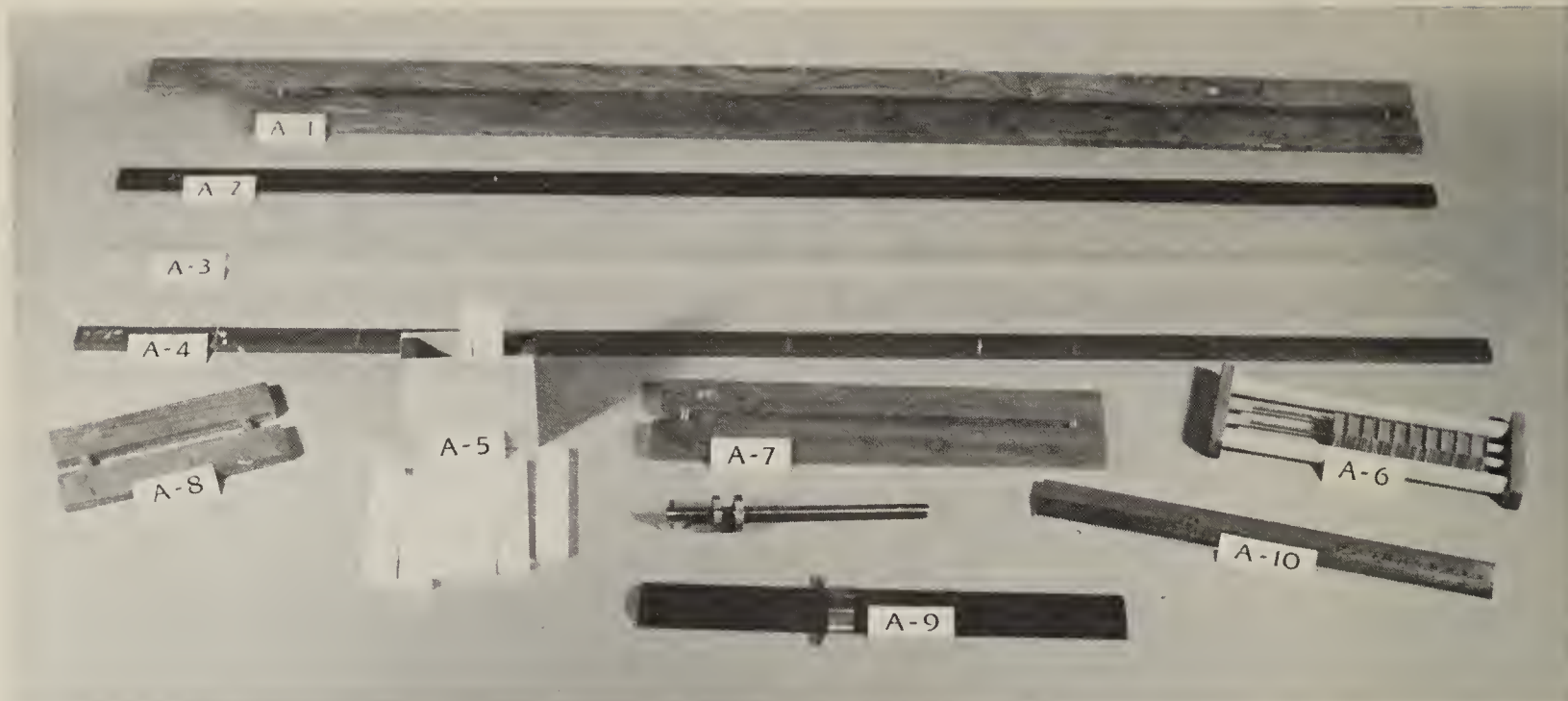


Figure 1. Various Linear Measurement Devices

- A-1 Comparative unit for metre and yard
- A-2 Plastic metre stick
- A-3 Metre marked in centimetres
- A-4 Metre marked in decimetres
- A-5 Decimetre segments which equal one metre
- A-6 Device to show relationship between millimetres and

- centimetres; each piece is one millimetre thick
- A-7 Comparative unit for 300 mm and one foot
- A-8 Comparative unit for 150 mm and six inches
- A-9 300 mm rule with markings at each centimetre
- A-10 Technical rule 300 mm long; each marking is 2 mm with centimetre markings slightly longer to facilitate reading; braille numbers mark the first ten centimetres

Figure 2. Comparison of Weight and Mass Using Common Items Such as Butter.





The 300 millimetre ruler is the one commonly used in metric measurements. A comparable customary ruler shows this 300 mm rule to be slightly shorter than a foot in length. There is an inexpensive grooved plastic rule, available in many office supply stores, on one side of which is the customary system and on the other the metric. The metric edge is divided into five millimetre segments, with longer lines at every ten millimetres (one centimetre). A precision measuring rule, with a tapered edge indented at each two millimetres is 30 centimetres (30 cm) or 300 millimetres (300 mm) in length. There are long indented lines at each centimetre marked with braille numbers. Even though the numbers are at centimetre lines, for precision measuring they would be referred to in millimetres.

Additional comparative units of length that have been developed show that a six-inch rule is slightly longer than one containing 150 millimetres (150 mm), that an inch is about  $2\frac{1}{2}$  times as long as a centimetre, and that four square inches is slightly larger than one square decimetre. All of these can be examined and related, one to another, by touch.

Not easy to demonstrate in tangible form, but of considerable interest to many visually impaired persons is the kilometre (km) or 1,000 metres. Used for measuring distances between cities, speed limits, and the like, a kilometre is equal to approximately  $\frac{6}{10}$  of a mile. Thus, our present highway speed limit of 55 miles an hour would be about 88 kilometres an hour in metric language.

**LENGTH,** In the metric system, there is a definite relationship between length, volume, liquid capacity **VOLUME,** and weight or mass. This is illustrated by a stack of ten squares, each one centimetre thick and one decimetre long on each side (see Figure 2). Each block has an area of one square decimetre ( $1 \text{ dm}^2$ ). When these blocks are stacked one on top of another, they form one cubic decimetre ( $\text{dm}^3$ )—ten centimetres equal one decimetre. If this were an open container, it would be called a litre (*l* or *l*) for liquid measurement; if it were filled with water, it would weight one kilogram (kg). The ten blocks together do weigh one kilogram. Another aid to teach volume-weight measurement is a cubic decimetre ( $\text{dm}^3$ ) divided by grooves into ten centimetres on each side or 1,000 cubic centimetres in the cubic decimetre ( $10 \times 10 \times 10$ ).

The cubic decimetre divided into centimetres, described above, makes for easy transition to metric weights, for the weight of the amount of water in one cubic centimetre ( $1 \text{ cm}^3$ ) container is the metric unit of weight or one gram (1 g). One thousand grams make one kilogram. To compare the cubic decimetre and the kilogram with our customary system of weights, two conventional pound packages of butter and one smaller piece—not quite one-fourth pound—are used. These, which together weigh 2.2 pounds, are exactly the same in size and weight as the cubic decimetre which weighs one kilogram or 1,000 grams.

A balance scale, with weights of one, two, five, ten, 20, 50, 200, and 500 grams, all marked in braille, can be used to compare our customary ounces and pounds with metric grams. A paper clip weighs one gram; a nickel, five grams.

### Comparing Liquid Measures

To compare liquid measures, a quart milk container is fitted with a small section on top. When the section is removed, we have a quart; when it is put back on, we have a litre. The litre is about six percent larger than the quart, and there are about  $3\frac{3}{4}$  litres in a gallon. Thus, a purchase of ten

gallons of gasoline would contain 37 litres. The two most commonly used units of liquid measure used in cooking are the litre (*l* or *l*) and the millilitre (ml)—one thousandth of a litre. Fortunately, the measures we now use in the kitchen are so similar in amounts to metric measures that there will be little difficulty in using favorite recipes.

The metric cup, containing 250 millilitres (250 ml) or one-fourth litre is only slightly larger than the customary cup measure. To make the exact measurement of liquids easy for the blind homemaker, a series of four displacement units have been developed. If the largest unit is placed in a measuring cup when it is partly filled with liquid, enough liquid will overflow so that only 50 millilitres (50 ml) will remain in the cup. Other units can be used in a similar manner to exactly measure 100, 150, and 200 millilitres of liquid.

### Measuring Cups and Spoons

Already on the market are the individual graduated metric measuring cups and spoons, both in metal and plastic, that are the mainstay of the blind cook. At the Center for Metric Education, sets of cups have been marked in braille—one cup holding 250 millilitres, one-half cup or 125 millilitres, one-third cup or 80 millilitres, and one-fourth cup or 60 millilitres. Because it is more convenient for the visually impaired cook, when measuring small quantities of liquid, to dip rather than pour, handles on a set of spoons have been bent so that they resemble small dippers. The units we now use for spoons and the metric units are very nearly the same. The tablespoons is equal to 15 millilitres (15 ml), the teaspoon to five millilitres (5 ml),  $\frac{1}{2}$  teaspoon to 2.5 millilitres (2.5 ml), and  $\frac{1}{4}$  teaspoon to 1.25 millilitres (1.25 ml). Braille markings have been placed on the handles of the spoons, but the new system is so simple and logical that these would probably not be needed by most blind cooks.

Available at fabric shops and sewing centers are metric tape measures, skirt markers, and seam gauges. The Center for Metric Education has demonstrated that these can be easily adapted for use by the blind seamstress: With staples to mark decimetres and notches at the centimetres on the tape measure and notches on the skirt marker and seam gauge at centimetre intervals, all of these can be read by touch.

**CELSIUS** Temperatures in the metric system are **TEMPERATURE** measured in degrees Celsius ( $^{\circ}\text{C}$ ) where water freezes at zero degrees and boils at 100 degrees. It is easy to compare our present Fahrenheit scale with degrees Celsius for weather temperature if we remember that a nine-degree increase in the former scale is equal to a five-degree increase in the Celsius scale. Starting at  $10^{\circ}\text{C}$  which equals  $50^{\circ}\text{F}$ , a temperature of  $15^{\circ}\text{C}$  would equal  $59^{\circ}\text{F}$ . Normal body temperature in degrees Celsius is 37 degrees. Our homes will probably be comfortable at 21 or  $22^{\circ}\text{C}$ . Notches filed at several crucial points into the rim of a Celsius stove-top thermometer make it possible to accurately determine the location of the pointer by touch. In cooking, a fairly accurate degree-Celsius temperature can be determined by cutting the Fahrenheit temperature in half—for example, an oven setting of  $400^{\circ}\text{F}$  would be approximately  $200^{\circ}\text{C}$ .

The various teaching aids for the visually impaired that have been made at the Center for Metric Education (Figure 3) are described on a tape recording. Explanations are given on how each item can be used and, in addition, the listener is



# Metrics

instructed in the metric measures applicable to each device and the comparison of these with our customary units of measure. Thus, through examining, experimenting, comparing, and listening, metrics can become a way of life for the visually impaired without the tedious memorization of tables and terms.

## Resources

American Foundation for the Blind  
15 West 16th Street  
New York, New York 10011

American Printing House for the Blind  
1839 Frankfort Avenue  
Louisville, Kentucky 40206

Corning Glass Works  
Corning, New York 14830

Foley Manufacturing Company  
3300 N.E. Fifth Street  
Minneapolis, Minnesota 55418

Martin Burns and Company, Inc.  
Hardware and Electrical Wholesalers  
7-17 Allen Street  
Wellington, New Zealand

Orco Products, Inc.  
Dayton, Ohio 45404

Center for Metric Education  
Western Michigan University  
Kalamazoo, Michigan 49008



Figure 3. Various Household Metric Measuring Devices

- E-1 Tape measure with notches at each centimetre and staples at each decimetre
- E-2 Hem gauge marked with notches at each centimetre
- E-3 Comparative unit to compare litre and quart

- E-4 250 ml measuring cup with displacement cones
- E-5 Liquid measuring spoons
- E-6 Measuring spoons and cups for dry measure
- E-7 Temperature scale for cooking, marked in 25-degree Celsius increments; this scale is equipped with a clamp to hold it on pots and pans; it may also be used in meat

# Blindness and Early Development: What Is Known and What Needs to Be Studied

DAVID H. WARREN, Ph.D.

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■ There has been substantial research attention devoted to the description of the characteristics and abilities of blind children, and to the comparison of blind children with sighted children. However, while comparative *description* is possible in several topical areas (particularly perceptual and motor development), the literature does not provide a very satisfying picture of the comparative *development* of blind and sighted children. There are at least two reasons for this shortcoming. First, much of the evaluative work on blind children has included children over a wider age range than is typically the case in the developmental literature on sighted children. This inclusiveness is attributable to the relative unavailability of blind subjects but it is unfortunate in that it may mask age-related changes. Second, most research with visually impaired children has been restricted to description of abilities and behavior and has stopped short of investigating developmental *process*. Thus, while the differences between three and six year olds may be known, little is known about the nature of the reasons for the changes, that the three year old undergoes in becoming a six year old.

The relative lack of attention to developmental process means, of course, that the answers to the second question are not readily available. Very little can be said about the variables that cause development lag. (For perspective, it may be noted that research in child development can be generally criticized for a relative lack of attention to developmental process—for example, one of the most persuasive and widely influential theories of development, Piaget's theory of cognitive development, is often criticized for its lack of attention to the processes that cause development to proceed from one stage to another.)

The lack of information about the variables that produce developmental differences also necessitates a very incomplete set of answers to the third question. If the variables that produce developmental differences are not understood, then it is not possible to incorporate those variables into maximally effective developmental intervention programs. There are intervention programs reported in the literature, but it is extremely questionable whether they are optimal programs in any sense since there is simply not the research available on which to build optimal programs. Further, it is generally not possible to make strong statements about the effectiveness of these programs, since adequate evaluation research has not usually been done. Answers to the fourth question, concerning remediation, are not as dependent on an understanding of developmental process as are the answers to the third question. That is, remediation of developmental problems once they have occurred may require a different set of approaches than does structuring of experience to avoid developmental lag. As has been noted earlier, the literature on remediation is characterized by a heavy concern for diagnosis, but remedial programs have not in general been effectively described, compared with other programs, or evaluated in their effectiveness.

**WHAT IS KNOWN** The following is a set of very general answers, to the extent that they can be formulated, to the questions to which this review was directed.

Perceptual discrimination abilities, such as perception of texture, weight, sound, etc., do not typically show differences between blind and sighted children, or between groups of blind children with various characteristics. In more complex or integrative categories of perception, such

**Abstract:** *The deficiencies in research into the comparative development of blind and sighted children—and some of the reasons for them—are pointed out. Area by area (perceptual-motor development, cognitive development, language development, social development, personality development) the kinds of research that have been done are described and the kinds of research that should be done are described. Reasons why certain kinds of research into early development of blind children have not been done are also discussed.*

*This article is adapted from the author's forthcoming book on early development and blindness which will be published by the American Foundation for the Blind. The tentative publication data for the book is summer 1976.*



**“The danger of taking sighted developmental norms as a frame of reference for the development of the blind child is obvious. The more appropriate frame of reference is . . . the blind child himself. . .”**

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as form identification, spatial relations, intermodality relations, and perceptual-motor integration, some substantial deficits are shown by blind children. There are also marked differences between various groups of blind children (e.g., a period of early vision produces an advantage in some areas). Some statements may be made about the variables that produce the differences. The variables about which statements *can* be made, though, tend to be self-selected variables such as duration of early vision, and there is much less material available about variables that might be suitably manipulated in a program designed to prevent the deficiencies from occurring. There has been little systematic attempt to structure the young child's environment in such a way as to avoid these deficits, and programs that have attempted to do this have not been effectively evaluated. With respect to the question of remedial training, there have been few programs reported, and these too have not been effectively evaluated or compared with other programs.

### **Cognitive Development**

There are several types of cognitive abilities that show differences between blind and sighted children, or between various categories of blind children. These abilities range from relatively specific (e.g., understanding spatial concepts) to relatively general ones (e.g., understanding the properties of world, as assessed by Piagetian tasks). Cognitive development has been vastly understudied in comparison to perceptual development, but in recent years there has been a great deal of interest in cognitive development and the picture is changing rapidly. Until now, the research on cognitive development has, like that in perceptual development, been characterized primarily by descriptive work, and there has been relatively little attention to the variables that produce differences. There is preliminary evidence on some promising leads, though. For example, several researchers have noted impressive differences between residential school and integrated school samples. Some of the variables that differentiate these two environments are amenable to manipulation, and therefore there is a strong possibility that well-designed research on the antecedents of cognitive differences will be forthcoming and will provide important information about the experience to which blind children should be exposed in order to maximize the possibility that they will fulfill their potential. There has as yet, though, been little research on ways of structuring the environment in order to meet this goal. There has also been little work on the possibility of remediation of developmental lag. The few studies that are available do show some promise. Great

care must be taken in such research, however, for two reasons. First, improvements may be produced by a remedial program that are only temporary and do not continue much beyond the end of the special program. The permanency of effects must be evaluated well beyond the termination of the program. Second, to the extent that the slower developmental acquisition of cognitive abilities is characteristic of blind children in general, avoidance of the lags would produce development that is accelerated compared to the normal rate for blind children. Any occurrence of accelerated development must be carefully assessed with respect to the question of whether the abilities that are acquired are as stable or solid as they would have been under the normal course of development. Acceleration of development (that is, avoidance of lag) may, in such situations, actually be to the child's disadvantage. The danger of taking sighted developmental norms as a frame of reference for the development of the blind child is obvious. The more appropriate frame of reference is the optimal development of the blind child himself, difficult as this is to determine. Researchers must guard against oversimplified goals and inadequate long-term evaluation.

### **Language Development**

For blind children without additional handicaps, there is little evidence of developmental difference from sighted children in most areas of language development. The production and refinement of sounds, the acquisition of early vocabulary, and the acquisition of grammatical forms are not apparently different in important ways. The area where the question is still quite wide open is that of meaning (including “verbalism”), and the work on meaning has not been adequate. There seems to be little basis in the available research to justify the conclusion that the blind child is deficient in language meaning in any significant way. There is some evidence for differences in “richness of meaning,” but it is by no means clear whether any such differences have implications for the adequacy of thought or other functional uses of language. Given the incompleteness/inadequacy of the study of these questions, it is not surprising that there has been little effective attention to the variables that might produce differences. The study of antecedent variables might provide a useful format within which to study the differences themselves. There have been some promising approaches to the question of the trainability of language in such functional categories as general and spatial relations vocabulary, but the long-term effectiveness of these attempts has not been adequately evaluated, nor has the extent to which any demonstrated improvements find expression in functional behaviors that depend on vocabulary.

### **Social Development**

There is substantial evidence that the course of social development is different in blind and sighted children. For example, the indicators of social attachment and identification follow a slower developmental course in blind children, and the acquisition of social skills such as eating, toilet training, and dressing proceeds more slowly. It is not clear that the lags in indices of social development demote a less adequate socialization process for the blind child, however, since the equivalence of the indicators has not been estab-



lished and there is reason to think that they are not equivalent. There has, appropriately, been some consideration of the important role that parents and other people play in the socialization of the blind child, but this work has been primarily description and has not effectively concentrated on ways of preventing or ameliorating the potentially negative influences that these "significant others" may have. In the area of social maturity, the weight of the research suggests that there are substantial developmental lags shown in various areas by blind children. The significance of tested lags on indices of social maturity is not clear, however. That is, it is not well understood just how a lag as measured by a social maturity scale translates into inadequate social behavior. A gap also exists in the understanding of the causes of particular lags. More adequate theoretical treatment of social development may help by providing a structure for useful research.

Finally, preliminary results indicate that the blind child's understanding of sexual behavior and functions is inadequate. Various education programs are presently in effect or being designed, and their relative success should be carefully evaluated.

### Personality development

In the area of personality development, there are some reasonably well-established differences between blind and sighted children, although the bulk of the research has been concerned with adolescents. Although there have been some reports of differences between blind and sighted infants in such characteristics as aggressiveness and passivity, these reports have not been based on large numbers of infants and must therefore be taken with some reservation. Of more importance is the lack of research that draws lines of continuity between the characteristics imputed to infants (and the variables that are thought to be their basis) and the characteristics that have been noted for older children. Personality does not develop in a vacuum, and there is a lot to be learned about the determinants of personality characteristics in blind children. The questions of prevention or "remediation" of certain characteristics quickly begin to take on serious value judgments. The field is at present far from having to deal with these judgments, though, since there is so little known about the determinants of personality development in the blind child. A characteristic that has received some concentrated attention is locus of control, and here the value judgments would seem to be less critical since it may be hypothesized that internal locus of control bears significantly in the independence and self-sufficiency of the blind child (and adult). In general, though, there is relatively little known about either the determinants of or the functional significance of certain personality characteristics in blind children.

In the area of emotional disturbance, there has been some success in tracing disturbance to etiological factors such as the parent's emotional stability and interaction with the child. This work has been primarily descriptive in nature, and it has not tended to generate effective (or effectively evaluated) modes of treatment or intervention.

**WHAT NEEDS TO BE STUDIED?** The brevity of the foregoing sections implies that there is much work to be done on the effects of visual handicap on the development of children. There is, indeed. The purpose

of the following sections is to point out the more gaping holes in the available picture of the development of the blind child.

### Perceptual and Motor Development

*Auditory:* there has been little information gathered about the normative development of responsiveness to auditory stimulation. The information that is available is based on small samples and case studies, and there is not a sufficient normative data base against which to begin to evaluate the development of any particular infant. This lack is unfortunate in view of the desirability of identifying multiple handicaps involving visual and auditory deficits as early as possible. It is also unfortunate that not more is known about the normative development of the blind infant's use of auditory information in mediating the identity and location of objects in the world. The development of various motor responses to auditory stimulation is also an important issue for study, including the possibility of head, eye, and body orientation to sounds as well as the development of manual reaching to sounds. Reaching to objects on the basis of auditory cues has received intensive attention from Fraiberg and others, but as yet the sample on which such study is based is quite limited and a firm picture cannot be drawn. There are indications in this literature that there are marked differences between individual infants, and it is important to establish the range of normal behavior as well as to study the extent to which differences might be traced to differences in early experience.

The study of auditory functioning in early and middle childhood has also been relatively neglected, despite the obvious importance that auditory perception has for the blind child. The sparseness of the work in auditory localization is perhaps the most obvious lack in this area, but the relatively more neglected area of auditory information selection and use is just as important. The blind child is, even more than the sighted child, dependent on the effective selection, processing, retention, and use of auditory information (Witkin's provocative finding about auditory attention is an exception), and the careful and systematic study of these topics would allow immediate applications in the areas of mobility, interpersonal behavior, and general education. Finally, there has been no study of the continuity of auditory abilities between infancy and childhood.

*Motor development.* There is agreement from several sources that gross motor development is not generally retarded in blind infants and young children. Selective lags occur in certain aspects of manual (e.g., midline bimanual coordination) and locomotor development (crawling, walking). Writers such as Norris et al. (1957) have argued that the selective lags may be attributed to specific environmental characteristics. While this suggestion seems quite reasonable, there is little direct evidence either for or against it. Formulations about causality have been too general to serve a prescriptive function for those who with young blind children. There have been enough reports of individual variation among blind infants reported to suggest that a study of individual variation and the specific environmental antecedents of such variation would be very rewarding. In such a study, attention should also be given to social interactive factors, such as parental overprotection, inasmuch as such factors may play a major part in motor development.

With the exception of evaluative studies such as that of



“... a large proportion of the spontaneous variation between individuals may be traced to differences in their early experience.”

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Buell (1950) and experiential programs such as that of Cratty, there has been insufficient attention devoted to motor development in school age children. The development of mobility readiness scales such as that of Lord (1969) is an important step in this area, but even the impressive work of Lord has been directed primarily to the readiness screening process rather than to evaluation for the purpose of remediation. The published reports of motor remediation programs have generally suffered from a lack of adequate evaluation. This lack is especially unfortunate in view of the substantial effort that must be put into remediation studies.

As is the case for many other areas of research with blind children, the age range between late infancy and school age is notably unstudied. As noted earlier, it is important to study individual variation among infants and to attempt to trace differences to environmental conditions. It is just as important to study the continuity of individual patterns of motor development between infancy and childhood. Careful longitudinal research is needed here. Longitudinal research is tedious and expensive, but it is critical to determine whether the motorically relatively precocious infants are those children who later exhibit better mobility readiness or achievement. Longitudinal approaches are also required to determine whether environmental adjustments which produce relatively more advanced infants continue to have a noticeable effect on four, six, and eight year old children.

### **Mobility Success Needs Study**

Mobility success, both in the sense of response to formal mobility training and in the more informal sense of the general ability to “get around,” deserves more intensive study, since successful mobility is one of the key prerequisites for the independence of blind child or adult. Warren and Kocon (1974) have provided an extensive review of factors in successful mobility. The most general summary statement of the review is that there are several avenues but many potential obstacles to successful mobility. The relevant variables are by no means restricted to motor and perceptual areas, though—parental overprotection (a “social” variable) may be one of the potentially most limiting experiential characteristics. Only careful, inclusive (with respect to range of variables), and critically evaluative research will produce the progress needed in this area.

*Stereotypic behaviors:* The etiological picture of stereotypic behaviors is not clear, and there are competing theories based on sensory deprivation and social deprivation/emotional disturbance formulations. While the present evidence would seem to support the sensory deprivation formulation, it may be that the etiological question, while important, is not the most critical one. Other important questions have to do with the specific situational stimuli for the occurrence of stereotypic behaviors (e.g., stress), the desirability of decreasing these behaviors, including both

pros and cons, and the ways that a decrease in stereotypic behaviors might be effected. The argument by Guess (1966) that the child's engaging in stereotypic behaviors may decrease his attention to the external environment is a convincing one, and it argues strongly that ways should be studied to decrease the incidence of stereotypies. On the other hand, researchers must be sensitive to the possibility that stereotypic behaviors provide a behavioral mode to which the child can adaptively regress in situations of extreme stress. In particular, attempts to prevent the child from engaging in stereotypic behaviors in such situations may only make the child's dilemma more severe, especially when such attempts take on aspects of punishment.

*Tactual perception:* The study of tactual discrimination (e.g., texture, pattern, length, size, etc.) has enjoyed a long history, and there is continuing research on these questions now. Much of this work has been directed to questions of the comparability of the abilities of blind and sighted children. While this work is interesting, it is probably not the most important direction for research in this area to take. Two orientations should receive more attention in new research. First, the role of experience in the development of tactual discrimination abilities is important. There is some provocative work that has compared the abilities of good and poor braille readers, and non-braille readers, but the questions of causality have not been handled adequately. That is, to the extent that good braille readers are better at tactual discriminations than poor readers, is the additional experience involved in becoming a good reader a cause of the better tactual sensitivity, or do these children become good braille users because of their better tactual sensitivity? The answer to this question is not clear, and the question is only representative of the larger question of the role of experience in the development of tactual sensitivities. The second important direction has to do with the functional significance of good or poor tactual discrimination for more complex functions that depend on discrimination abilities. Tactual discrimination, for example, of texture, should not be studied in isolation. It should be studied along with the role of tactual discrimination in more complex activities such as braille perception, map reading, and pattern identification. The simple discriminative abilities are of little use in isolation, but they are critical to these more complex skills which blind children must use every day.

*Spatial relations:* Much of the research on tactual perception beyond simple discrimination has been taken as bearing on spatial relations. However, spatial relations abilities are complex, involving several levels, and care must be taken not to make overgeneralized statements about spatial relations on the basis of tactual tasks. Aspects of motor abilities, and auditory and even visual perception are involved in spatial relations in blind children. Given this complexity, it is appropriate to advise the inclusion of functional levels of performance in studies of spatial relations. For example, in studies of tactile maze learning where reference is made to spatial relations, tests should also be made of the more functional behavior of map use for mobility. If some aspect of auditory-motor spatial relations is under consideration, it should be with the goal of ascertaining how variations in auditory-motor abilities become expressed as variations in functional spatial behavior. The point is simple: it is not sufficient to study an ability in isolation from its functional significance for behaviors that may depend on it.

In their review of early vision and its effects of various aspects of spatial behavior, Warren, Anooshian, and Bol-



linger (1973) noted the need to consider the specific task requirements of any given "spatial relations" task. In particular, they concluded that the advantage of blind subjects who had had a period of early vision was more marked for more complex tasks than for relatively simple tasks. In research on spatial relations, then, special care must be taken to analyze and report adequately the nature of the spatial relations task being used. In addition, as spatial relations tasks become more complex, various subject characteristics such as duration of early vision, degree of residual vision, and time since blindness onset become more important. The issue of whether residual vision use should be encouraged or not is an important one, and research is needed on the relative spatial and mobility success of children who have and have not been encouraged to rely on residual vision.

Another issue deserving more attention in the spatial relations area is the nature of spatial representation. Do some children conceptualize space topologically while others "construct" space by learning a set of verbal rules? If there are such differences, what are the antecedent conditions that influence the type of representation that develops? The occurrence of a period of early vision may be an important factor, but it is undoubtedly not the whole answer. For congenitally blind children, is a verbally mediated representation of space more or less effective than a topological representation that might be built up on the basis of an integration of appropriate motor, tactual, and auditory experience? These are complicated questions, and their answers will not be found from simple research paradigms. It may well be that the most effective way to study this area is through an analysis of the individual differences in spatial relations abilities that seem to occur "spontaneously" in blind children. It may be that a large proportion of the spontaneous variation between individuals may be traced to differences in their early experience. Only studies that include an adequate consideration of variations in early experience will provide the answers.

**THE USE OF INTELLIGENCE TESTS** *Intelligence.* A primary point of concern with the area of intelligence testing of blind children has to do with validity. The fact that a particular test has enjoyed wide use with sighted children constitutes no grounds for the assumption that it must therefore be a valid test for blind children. In fact, the popularity of the intelligence testing movement with sighted children should not be used to argue that the intelligence testing of blind children should enjoy similar importance. The usefulness of standardized testing for any population must be determined with reference to that population. If it is found to be the case that intelligence tests are useful predictors of some areas of adaptation (e.g., school achievement) for blind children, then such testing should be done. The uses to which such tests are put should always be carefully evaluated, however, and the use of a test for purposes for which it was not specifically designed should be avoided.

Before any test is used for purposes that have implications for what will happen to the child as a result of his performance, the test should be studied in considerably more detail than has been done for most of the tests currently used with the blind. In particular, such evaluation should be directed to the predictive validity of the test for the specific purpose for which it is used. It simply is not justified to use the verbal WISC, for example, for purposes of educational

placement or prognosis of blind children simply because the test has been shown to have good predictive validity with respect to the educational achievement of sighted children. Furthermore, the demonstration of the predictive validity of a test with respect to one class of criterion behaviors (e.g., educational achievement) cannot be taken as demonstration of the validity of that test for other criterion behaviors (e.g., readiness for formal mobility instruction), even if the test was developed for and normed on blind children. The validity issue cannot be stressed heavily enough. Standardized tests are simply handy indicators of abilities, and the behaviors required by the tests often bear little similarity to the behaviors of which the tests are thought to be indicators. The tendency to place such tests on pedestals is most insidious and should be conscientiously held in check.

## Cognitive Ability

*Cognitive development.* The Piagetian approach has proved valuable in structuring research on the child's understanding of the properties of the physical world. Some significant gaps remain in this area, however, and considerably more research is needed even in those areas (e.g., conservation) which have received the most attention. A major gap in the research appears in the early stages of cognitive development, specifically the sensorimotor period (first two years). A careful theoretical analysis of the development of the blind infant is needed, and considerable data will have to be gathered before the theoretical accounts may be tested adequately. Even in the later preoperational and concrete operations stages, the research to date has been primarily concerned with generating comparative blind-sighted data, and there has been relatively little effective analysis of the lags that have been found. To be sure, the research in this area is relatively new, and research in a new area is almost always concentrated initially in the generation of description data. Effective interpretation of developmental phenomena can occur only after descriptive data are available. Even so, this area would benefit from a concentration not only on what happens normatively over developmental levels, but also on the variations that occur within each level. Hierarchically organized research is needed that includes consideration not only of the cognitive tasks but also of sensory factors (e.g., Gottesman, 1975) and learning environment factors (e.g., Norris et al., 1957). Higher order levels should also be included in this research, including consideration of the various ways that cognitive abilities can help or hinder the child's adaptation to the tasks that he encounters in his real world existence. The need for hierarchically organized research is especially acute in areas (e.g., classification, abstract reasoning) where patterns of results from laboratory-type criterion tasks are complex. Here the nature of the criterion task and the extent to which a given criterion task may be generalized to statements about functional abilities must be carefully analyzed.

There is a major need for studies of the effectiveness of various types of training in cognitive abilities involving understanding of the physical world. Training studies are particularly valuable in areas where there is a fairly regular developmental course of acquisition of abilities. Research on training techniques must also be appropriately multi-level, including attention to subject characteristics (and their antecedents) and a careful assessment of training-related improvements in the criterion tasks as well as in those abilities which the criterion tasks are hypothesized to represent.



**“Where language differences are found between blind and sighted children, care must be taken to assess whether the language difference is primarily an issue of language, or is attributable to some other and possibly more basic difference. For example . . . cognitive development.”**

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The imagery question arises in several areas within the cognitive realm, such as spatial behavior and learning abilities. There is a need for research on types of imagery and on the functional importance of imagery. Given the implicit difficulties in defining imagery and the multiplicity of ways the term has been used, it is especially important to devote careful attention to definitions. One way of ensuring this attention is to maintain an orientation to the functional tasks in which imagery is thought to be expressed. Another requirement of research in this area is to provide a careful analysis of the imagery tasks, and not to assume that all possible uses of the term imagery are equivalent.

The work in cognitive style is potentially very important in its implications for educational approaches with blind children. The possibility that blind children in general are characterized by different cognitive styles than sighted children deserves more attention, as does the likelihood that there is as great a range of individual variation in cognitive style among blind children as there is among the sighted. Research on these questions has potential relevance for the issue of individualization of educational instruction for blind children, as well as for the issue of the integrated classroom.

There has been a substantial effort devoted to studying the relationships of status variables such as degree of residual vision, duration of early vision, and chronological age to performance on tests of intelligence. While this sort of research is useful, it should be kept in careful perspective. Specifically, the relationship between these variables and tested IQ should not be of primary concern. Rather, the relationships between these variables and the abilities or behaviors of which the IQ tests are taken to be indicators are important. A general point that has been repeatedly stressed elsewhere here should again be repeated. The most beneficial research is that which is concerned with a set of hierarchical levels of variables. Antecedents (i.e., the status variables mentioned above, along with others such as the nature of the learning environment) should be studied in conjunction with intelligence test performance and with aspects of functional behavior such as actual success in school situations. The primary concern, in fact, should be with the relationships between the antecedents and the functional behaviors, and the indicators (i.e., the IQ tests) should not be allowed to interfere with that primary goal.

It has been stressed in many papers that there are variables that act as “suppressors” of intelligence as evaluated by standardized tests. This point appears in several papers

on the intelligence of emotionally disturbed children, for example, and it is often suggested that the emotional problems have suppressed the expression of intelligence as assessed by the intelligence test. This point is typically made on the basis of “clinical intuition,” however, and it is important to develop more reliable ways than are presently available for assessing and excluding such depressor effects. The acquisition of a larger data base about these situations is an important step in the direction of the goal of more effective evaluation, and concentrated attention should be devoted to the acquisition of such data.

A final point should be made about the research that has been devoted to the evaluation of intelligence characteristics of various “special groups” such as retinoblastoma or RLF children. To the extent that such evaluation aids in the understanding of the characteristics of these groups, this research is valuable. There is an attendant danger, though, and it should be carefully weighed. Findings about the characteristics of a group should never be allowed to stand in the way of individualized evaluation of a member of that group; that is, overgeneralization should be avoided. This point is particularly important, although not limited, to groups such as retinoblastoma where the literature contains apparent contradictions. It may well be the case that retinoblastoma children are bimodally distributed with respect to intelligence, and thus the application of a group characteristics to an individual member of the group would be especially inappropriate.

**LANGUAGE DEVELOPMENT** There are a number of questions in the language area that lack definitive resolution. Several of these questions, although their answers would be interesting and informative, are less demanding of research attention. An example is the nature of the transition from babbling to initial word sounds and whether the relationship between these two categories of behavior is different for blind and sighted children. A variation of this question has to do with the possibility that the sounds produced by blind children are more muted, or less well defined. There is some evidence that there may be such differences. However, there is also evidence that any such differences do not produce functional deficits in the comprehensibility of the blind child’s speech (e.g., Brieland, 1950). Comprehensibility, as a vehicle to communication, is the critical functional aspect of sound production, and since there are apparently not differences in comprehensibility, the issue of differences in sound quality becomes less important.

Another question on which there is relatively little evidence is that of the growth of early vocabulary. Although there is some argument for temporary lags in vocabulary acquisition in blind children (e.g., Burlingham, 1961, 1965), the lags are apparently not marked. In any case, the more important issue would seem to be the question of whether there are deficiencies in the meanings carried by words. A reasonable question is whether the proportion of the words in the child’s vocabulary that are functionally effective is deficient in blind children, and more importantly, whether any delay in effective vocabulary is functionally involved in other abilities that depend on language, such as self-instructed behavior, cognitive development, and interpersonal communication. The verbalism issue arises here, and there has been a very low ratio of reliable information and careful analysis to total pages written on this question.

The review by Doecky (1966) is an important



exception—in this paper the issues are discussed clearly and logically. In discussing the functional aspect of word meaning, Docecki concluded that “It still remains to be demonstrated that associative and word-thing meanings are functionally different for the blind or for any other group” (p. 528). Results from subsequent research (e.g., DeMott, 1972) supported Docecki’s scepticism with regard to the verbalism issue as discussed by Cutsforth and others. The study by DeMott was an important one, and since the issue is an important one in a functional sense, it would be useful to have the same question studied from different approaches. One approach that makes a great deal of sense from the point of view of examining the effects of experiential variations is the study of the relationship between the child’s early language environment and his subsequent use of “visual” as well as other categories of words. It may be that two blind children might use visual words equally frequently, but that the usage of one child might be more adequate in a functional sense than that of the other child. It would be valuable to generate a research approach that would allow relationships to be drawn between functional usage differences and types of verbal interactions (e.g., “elaborative” vs. “restrictive” usages, special attempts to provide experiential bases for words, etc.). An area of special interest is the use of spatial relations vocabulary.

### **Inhibition of Behavior and Verbal Commands**

The self-instructive function of language was mentioned above, and since there has been little or no research on this aspect of language function in blind children, the issue bears some elaboration. Luria (1959) detailed stages in the development of the sighted child’s ability to vary his behavior either by his own verbal instruction or by that of an adult. Until at least the age of three, the child is able to initiate behavior by a verbal command, but he is much slower in developing the ability to inhibit his behavior selectively upon either his own or an external verbal command. One aspect of the difficulty in inhibiting behavior by verbal command is apparently the relative strength of perceptual cues, and it is only gradually that the child can free his behavior from dependence on perceptual cues and bring it under the control of verbal cues. Although this area of language development has not received concentrated attention in sighted children, research on verbal control of behavior might prove quite productive in the understanding of the development of blind children. Fraiberg and Adelson (1972) provided evidence from the case report of a two year old congenitally blind girl that self-instructed behavior may be effective in the blind child. The subject “employed parental admonitions to inhibit forbidden actions. ‘Don’t put your finger in your eye,’ she said to herself, imitating her mother’s voice when she pressed her eye, and sometimes succeeded in inhibiting the act” (p. 8). Other writers have noted that while the interpersonal, shared aspects of verbal behavior may be deficient, the blind child does sometimes effectively use a personal system of communication. Such a system might effectively mediate the self-direction of behavior even though it is not adequate for interpersonal communication. The issues involved here certainly deserve research attention.

### **Nonverbal Communication**

Another issue that merits some perspective is nonverbal communication. Several researchers and more casual observ-

ers have noted that with age blind children and adults become less elaborative in the use of facial, manual, and body expressions and gestures, and some of these writers (e.g., Apple, 1972) have suggested that expressions and gestures might be taught. While there is undoubtedly benefit to be gained from such instruction, the matter should be kept in careful perspective. The purely “cosmetic” purpose of facial expressions and gestures should probably be separated from the communicative purpose, although the two are not completely separable since the use of inappropriate gestures or expressions can interfere with communication. But blind children should not be taught to make gestures and expressions simply to make them look more like sighted children. The effectiveness of gestures and expressions in enhancing communication should be examined, as should methods of teaching them.

### **Language Differences**

A general point may be made with respect to potential research on language in blind children. Where language differences are found between blind and sighted children, care must be taken to assess whether the language difference is primarily an issue of language, or is attributable to some other and possibly more basic difference. For example, language development is closely related to and interdependent with cognitive development. It may be that certain differences in language ability may be a direct product of differences in cognitive abilities. To the extent that language is simply an overt manifestation of underlying cognitive functioning, it would be of little use to attempt to eliminate the language lag without prior or simultaneous attention to the cognitive area. The use of personal pronouns may be a case in point: several investigators (e.g., Fraiberg and Adelson, 1972) have noted differences between blind and sighted children. To the extent that the blind child is delayed in establishing a firm distinction between himself and other people, differences in pronoun usage would be expected. A full understanding of the issue would thus require attention to both cognitive and language aspects.

**SOCIAL DEVELOPMENT** Within the area of social development, there is a clear need for research on the phenomenon of attachment and on the variables that affect it. In this usage, attachment is considered in the relatively limited sense of the first emotional ties that typically occur in the first year for sighted children. As such, attachment is considered to be the basis for the subsequent establishment of emotional ties with other people and is thus a very important phenomenon. There is a great need for research on the factors that influence the initial onset and strength of attachment, as well as on the factors that affect the subsequent broadening of the social and emotional responsiveness to and relationships with a wider set of people. As assessed by the indicators typically used with sighted children (e.g., stranger fear, separation anxiety), there apparently are lags shown by blind children. It is not clear that these indicators are equivalent for blind children, though, and effort should be devoted to this question as well as the question of whether there might be better indicators for blind children. As has been stressed repeatedly, the question cannot stop simply with the establishment and study of suitable indicators—it is even more important to determine what functional significance delays might have for the blind child. It is likely that multivariate approaches will be re-



“Many practitioners prefer the ‘seat of the pants’ method of assessing social competence... Valid though an individual’s judgements may be, though, research using such approaches is less than satisfying...”

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quired for effective treatment of these questions, since attachment is surely as multiply determined in blind children as it is in sighted. Further, it is apparent that not only purely “social” factors are involved, but that there are aspects of cognitive functioning that must be considered as an integral part of social attachment.

### **Social Attachment and Non-Social Behavior**

A related issue that needs further study is the role of social attachment in other non-social behaviors such as exploration of the environment. There is convincing evidence that a good “emotional security base” is critical for the development of effective exploratory behavior. An important part of this question is how to maintain the blind child’s ongoing awareness of the parent’s presence, since vision serves an important function in this regard for the sighted child.

More research is needed on the factors that influence the effects of separation from the parents or other people who are important to the blind child. Periods of forced separation are an almost inevitable concomitant of early blindness, and there is abundant evidence for the potentially harmful results of such separation. It is unfortunate that most of the reports on the effects of separation have concentrated on the negative cases. There are undoubtedly cases in which separation has occurred but where the effects have not been serious. It would be of benefit to the literature in this area to have reports of such cases, accompanied by a careful analysis of the factors that seem to have mitigated the potential harmful effects.

Identification has been almost totally neglected in the blindness literature. Identification is the process that is hypothesized to account for the child’s acquisition of sets of characteristics of the parents or other important people. There are several theoretical formulations of the dynamics of the identification process, most notably the psychodynamic and the social learning theory approaches. The social learning formulation, involving imitation, modeling, and social reinforcement, seems especially useful in approaching the identification question in the blind child, since testable predictions about the effects of the lack of vision should be easily generated within this framework. There has apparently been no careful and thorough attempt to analyze identification within this framework, though, and virtually no research on the process of identification. This is one of the most substantial and unfortunate gaps in the literature on the social development of the blind child.

### **Social Maturity and Competence**

The question of the social maturity or social competence of blind children has received some attention, but there are major questions yet to be answered. Apparently few practitioners or researchers are satisfied that a suitable test of the social maturity of young blind children exists: the Maxfield-Buchholz Scale is considered by many to be very difficult to administer to preschool children, but an adequate substitute has not been developed. Many practitioners prefer the “seat of the pants” method of assessing social competence and claim a high degree of validity and reliability for their judgments. Valid though an individual’s judgments may be, though, research using such approaches is less than satisfying, and program evaluations and comparisons are suspect when the validity and reliability of evaluation cannot be demonstrated. The substantive questions of social maturity also need attention. While most studies and informal observations agree that the blind child is socially less mature than his sighted peer, the precise reasons for the lags are not specified. Useful formulations have been made in terms of interpersonal emotional processes and social expectations, but at present these formulations are for the most part restricted to explanatory function and are not generally useful in predictive, ameliorative, or preventative contexts. Analyses of social maturity have in large part been directed to descriptions of the blind child who shows substantial lags. Two supplementary modes of approach should prove useful. First, a greater attention should be paid to the antecedent conditions of social immaturity. That is, an intensive attempt should be made to identify social environmental situations that produce children with lags in social maturity. Second, far greater attention should be paid to those blind children who do not show lags, and their social environments should be carefully studied for clues to the etiology of their maturity. Research paradigms such as that of Imamura (1965), who studied the social interactive characteristics of both children and parents, should prove useful particularly if they can be conducted within a longitudinal framework.

### **Sex Education**

Knowledge about sexual characteristics and functions is a clearly identifiable aspect of the social maturity question, and as was noted earlier, this area has only recently begun to receive careful attention. There is important research to be done in this area. The need for evaluation of sex education programs cannot be stressed heavily enough.

Finally, there is a major need for research on the dynamics of the integration of blind children into various social groups beyond the immediate family, whether these groups include primarily blind children, primarily sighted children, or both. An obvious and important social situation that falls under this topic is the child’s integration into and adjustment to the school situation. There has been some work on assessment of the attitudes both of the blind child and of the receiving group, but there is little such research that would prescribe how such social situations might be structured in order to lead to a smoother socialization process.

**PERSONALITY DEVELOPMENT** Several large areas of need can be identified in the literature on personality development. An obvious gap occurs in the younger age ranges: the case report material on children up to several years of age, coming as it does from the study of relatively small



samples of children, cannot be considered normative or representative in any strict sense. The gap between this age range and middle-school age is even more severe, since there are few case reports available. Research with standardized instruments is almost non-existent for blind children through the middle school years.

Another major gap exists in the availability of personality assessment instruments for blind children. The problems stem partly from the inappropriate adaptation of tests normed for sighted children, and partly from the failure of investigators to agree on a limited number of instruments to be used with the blind. This second point is particularly applicable to projective tests, and the result is that there is not sufficient accumulated evidence about any of the tests in use to allow them to be used very effectively.

The fact that a given test probably cannot be administered to blind and sighted children with equivalent validity means that the goal of comparing blind with sighted children on personality characteristics or profiles is an impossible one. It may even be an inappropriate goal. Rather than comparing blind and sighted children, research should be concentrated on more intensive evaluation of blind children. To date much of the work on blind children has been simply evaluative, producing statements that blind children are more or less aggressive, or introverted, etc. Such conclusions are insufficient in any meaningful sense, however, and the research should be expanded in two directions.

### Personality Expression

One is toward discovering the etiological factors that produce variation in some of the more important personality dimensions, and the other is toward the manner in which various personality characteristics are functionally expressed. Ideally, all three levels of inquiry, etiology, description, and functional expression, should be included in any piece of research. Investigation of etiological factors clearly requires a multivariate approach, including both multiple determining variables and multiple personality characteristics. The issue of the functional expression of personality characteristics deserves brief elaboration. The point is that we do not proceed very far ahead by describing the characteristics of a sample, or by comparing the characteristics of several samples. Beyond description, we need to know how those personality characteristics become expressed in real life situations, and what advantages or disadvantages a person with certain characteristics might have in certain situations. Among others, locus of control is a dimension that deserves concentrated research attention, with respect to both the etiological and the functional expression questions. The functional questions are important since they bear on characteristics of motivation for achievement, mobility, self-support, and other related variables.

The matching between the assessment of personality characteristics and functional expression is even more important in the area of emotional adjustment. The vagueness of definitions in this area is a problem. Between defined concepts, and particularly definitions that draw relationships between measured personality characteristics and the characteristics of behavior in real situations, would be of great benefit in this area.

More attention has been devoted to the etiological questions in the area of the more severe emotional disturbances, but the issues are by no means resolved. One unresolved question is whether the syndrome noted particularly in some

RLF children is in fact autism or is rather some other condition that simply has several characteristics in common with autism. This question is probably not the most important one, however. A negative answer to the question would leave the blind child no further ahead than he is now. A positive answer might not help much either, since it is by no means clear either that the causal factors would work in the same ways for blind and sighted children or that the remedial approaches would be similarly effective. Thus the question of the parallel between sighted autistic children and emotionally disturbed blind children may be a useless one in any practical sense.

Attention should instead be concentrated on the etiological factors in blind children, with regard for social and sensory factors as well as the particular role that visual loss might play in exacerbating the situation. An approach that has not been explored very much but that might provide useful information involves the study of non-emotionally disturbed children. For example, if a particular constellation of factors is found to be correlated with the occurrence of serious emotional disturbance, then the discovery that the same constellation does not typically occur in non-disturbed children would provide a useful additional corroboration, while the finding that the constellation does occur in non-disturbed children would necessitate reevaluation of the hypothesized relation between those factors and emotional disturbance. In any case, it is clear that the effective study of the etiology of emotional disturbance demands a multivariate approach. The interactions among classes of sensory, social, and birth-situation factors are undoubtedly complex, and univariate approaches are simply not powerful enough.

Finally, with respect to the question of therapeutic approaches, there is a clear need for the careful evaluation of the effectiveness of the various therapeutic approaches for the various types of problems encountered. One of the strongest conclusions from outcome research with sighted clients is that various therapies are differentially effective with different types of problems. The situation can be no less complex for blind children. To the extent that therapists are strongly committed to a particular therapeutic school, they will probably be less totally effective than if they were able to choose a therapy to fit the specific case. Such effective selection cannot be made without an evaluation basis, however, and so the need for objective assessment of outcomes is critical to progress in the field.

**MULTIPLE HANDICAPS** The term multiple handicap is used to include the coincidence of any of a variety of conditions with blindness, conditions which if they were not accompanied by blindness would in themselves constitute areas of concern. Writers differ in their specificity of classification of multiple handicaps, but several obvious categories may be identified: emotional disturbance, physical handicap, mental retardation, and deafness. There is often overlap among these categories, and they should not be regarded as mutually exclusive.

The relative neglect of the multiply handicapped child in research contexts is remarkable in view of the apparent high incidence of multiple handicaps among the population of blind children. That incidence is in fact difficult to estimate. Probably the best information is contained in a paper by Cruickshank (1964), who assessed the incidence of multiple handicaps (excluding deaf-blind) in a group of 2773 blind



## “Careful attention to the integration of research findings into a systematic organization would be of benefit to the field both in providing meaningful direction and in allowing meaningful interpretation of the results of research.”

children in New York State. Of the 2058 children for whom IQ scores were available, 42 percent had IQ below 90. (According to the expectations of IQ scores based on the normal distribution, 25 percent of any random sample should score below 90). However, IQ data was not available for 715 children, and it seems likely that low intelligence children may have been overrepresented in the non-tested part of the sample. In any case, there are substantial numbers of blind children who fall into the low IQ categories. Of the 2236 children for whom incidence of emotional adjustment was available, 35 percent showed evidence of emotional disturbance, while 65 percent were “within normal limits for their chronological age.” Of the total group, 2.1 percent were classified as brain-injured, although Cruickshank noted that some of the 4.5 percent who were classified as hyperactive or aggressive may have brain-injured. Of the total group, 31 percent were classified as having one or more of a variety of physical disabilities. Of these 31 percent, 24 percent showed cerebral palsy, while 14 percent had epileptic symptoms. Data are available from other sources for deaf-blind children. For example, Burns and Stenquist (1960) estimated that there were almost 400 deaf-blind children in the United States below the age of 20.

### Why Research into Multiple Handicaps is Neglected

Thus it is clear that the problem of multiple handicap is a serious one from the point of view of incidence, and the figures cited above make it all the more striking that only a very small proportion of the research reported with blind children has concerned the multiply handicapped. There are undoubtedly several reasons for this relative neglect. Cruickshank (1964) noted one such reason: “they remain almost completely ignored because insufficient numbers exist in a single agency either to bring the problem forcibly to the attention of professional personnel or to permit professional personnel to become sophisticated regarding its nature” (p. 47). Another difficulty is certainly that the multiply handicapped blind child is an even more difficult subject for whom to design valid indices of various abilities than is the blind child, since the problem of visual handicap is compounded by limitations in other areas of performance. Still another reason for the relative research neglect of multiply handicapped children is the extreme heterogeneity of the children within any of the various definitional categories. Even within a reasonably specifiable dual handicap such as blindness-deafness, the range of both visual and auditory abilities is extreme, and thus any limited sample of such children cannot be reliably regarded as representative of the entire group.

Much of the literature on multiple handicaps stresses the need for adequately detailed evaluation of and differential prescription for these children. The multiple handicaps program at Syracuse University, for example, generated a

number of papers (e.g., Root & Riley, 1960; Dinsmore, 1967) that described in some detail the evaluative procedures that were used in the Center. Far less emphasis was placed, in these papers, on the details of *how* programs were prescribed for individual children, and almost no mention was made of any evaluation of the success of the programs that were prescribed. Thus it is virtually impossible to make any objective conclusion about the effectiveness of the diagnosis, the prescription, or the success of the prescribed program. It is not at all clear at what point the system might have been especially strong or weak, or even whether the children were better off for having been exposed to the process.

There is thus a great need for research on two levels with the multiply handicapped blind child. First, the evaluation of abilities has been almost totally neglected, so that it is not possible to evaluate the abilities and behavior of a given child against a background of data. Thus it is almost impossible to make a determination of the level at which a remedial program should be directed for any given ability area (e.g., perceptual discrimination, locomotor behavior, emotional growth, language function, etc.). Second, there is a great need for evaluation to be conducted on the effectiveness of various remedial or program approaches. Several approaches are used in connection with any of the set of multiple handicaps, and it would be useful to have information about the relative effectiveness of the various approaches in dealing with the problems of the multiply handicapped child. Without effective program evaluation, the field of intervention with multiply handicapped blind children cannot move very far forward.

It may well be possible to combine these two research goals into a single research format, in which normative and descriptive information about various aspects of development is gathered at the same time that evaluation is conducted of programs to which the children are exposed. Several of the larger centers would have to engage in close cooperation in order to ensure the successful conduct of this research since there are, as Cruickshank pointed out, relatively small numbers of children in any given multiple handicap category that are available at any single location. Over the course of several years, however, pooled evaluative data could become available from substantial numbers of multiply handicapped children. In addition, if effective program evaluation were conducted, a pool of information on the relative effectiveness of various diagnostic and prescriptive procedures would become available.

**THE EFFECTS OF LATER BLINDNESS** An area that deserves intensive attention does not fit into any of the foregoing sections, since it applies to the research in each of the areas covered in those sections. There has been very little effort devoted to the study of the reactions of children who become blind at various ages, or of the effects of “later blindness” on the various areas of abilities and behavior. Age at blindness has been included as a variable in research in some areas, notably perception, but it has typically been used as a “control variable” rather than as a variable worthy of study in its own right. The proportion of the blind population that is blind from birth is relatively small, yet a large proportion of the available research has effectively disregarded the age at onset variable. There is reason to expect that varying durations of early vision have substantial effects on the nature of subsequent development, and much more direct study of these effects should be made.



**THEORETICAL BASES FOR RESEARCH** Throughout the preceding review sections, several themes have appeared repeatedly and bear some elaboration. There is a need for a theoretical basis for research in many areas of blindness. Individual studies seem often to have been conducted "in isolation" from a larger body of related literature. This isolation is sometimes apparent from the author's failure to cite and review related studies, but often it is apparent from the author's failure to relate the research question to a larger framework, and/or his failure to discuss the findings in relation to a larger framework. It is partly because of this relative isolation of studies on blindness that the research in some areas seems so disjointed. The research on tactual perception is a good example: while there are probably as many good research papers available in this area as in any other, they do not fall easily into a framework out of which it is possible to make summary statements, or out of which it is possible to generate practical applications. Tactual perception may be the best example of an area in which the argument can be made that there is enough research to allow identification of the important parameters, so that the area is ready to be systematized, to have larger scale, intensive and integrated projects conducted. To date there has been little such work done. A contrast to the relatively atheoretical body of research in tactual perception is the recent surge of interest in cognitive development within the Piagetian theoretical framework. Although there is far less cognitive than tactual perception research available, the cognitive development area is in a better position to make major advances. The reason is that the various findings may be tied together into a system such that research on one aspect of the system has implications for other aspects. By contrast, the disjointed nature of the tactual perception field almost necessarily restricts the implications of a given piece of research to a small area.

### The Piagetian Framework

Following the cognitive development example briefly, it should be noted that although the Piagetian theoretical framework has helped to define research questions and has provided a common methodology, it has not as yet helped substantially in the interpretation of the various results into a common framework. In part this failure is attributable to the fact that the Piagetian system is itself more a descriptive than a process approach to development. The theory has been criticized for failing to propose change mechanisms that are amenable to experimental test. Another reason that Piagetian interpretation has not been as helpful as possible, however, is that the research on cognitive development in blind children has not in general paid careful enough attention to those variables that might be particularly implicated in producing differences among blind children, or between blind and sighted children. Variables such as degree of remaining vision, history of early vision, and learning environment have not been effectively studied.

Although I am making the argument for organizing knowledge about blindness and development into theoretical systems, I do not suggest that theoretical systems should be borrowed from the sighted literature without regard to suitable modification for use with the blind. The role of vision in some areas of development may be so important that the lack of vision would force an almost total reorganization of the other variables in the explanatory or predictive system. However, the point should not be lost: careful

attention to the integration of research findings into a systematic organization would be of benefit to the field both in providing meaningful direction to research and in allowing meaningful interpretation of the results of research.

### Areas of Development Are Not "Separate"

Another aspect of the need for a more broadly based approach to the study of blind children has to do with the interrelations among various aspects of development. It is perhaps unfortunate that a review such as this has to be organized by dealing with "separate" areas of development. The areas are not, in fact, separate. The interrelations among the areas are too numerous to list exhaustively, but several examples may serve to emphasize the point. Cognitive development does not proceed independently of language or perceptual development. Language development is closely interrelated with perceptual development, as is exemplified by the verbalism issue. Nor are social and personality development independent of cognitive, perceptual, and language development. The development of communication is an important component of socialization, and cognitive development (e.g., object constancy) is heavily implicated in the development of social and emotional ties. These are merely some of the more obvious examples of interrelationships among the various areas of development, and pages could be devoted to elaborating these and other interdependencies. Studies of development should not be constrained to or interpreted within narrow areas of development.

### Functional Emphasis

In virtually every area of research on the development of blind children, there is a need for research to be concentrated on functional behaviors and abilities. The tendency has, in blindness research just as in most psychological research, been to concentrate on those abilities and behaviors that are amenable to study in the laboratory or the prestructural situation. This level of inquiry is important, but it is not sufficient. Researchers must not stop short of evaluating the relationships between those laboratory behaviors and the real-world behaviors of which the laboratory behaviors are thought to be representative. The example of finger maze learning was used earlier in this context: it is simply not sufficient to study, for example, the relative finger maze learning abilities of early and later blind children. At the same time that maze learning is evaluated, researchers should also study the abilities of the children to perform real world behaviors, such as mobility map use, of which the laboratory behaviors are thought to be representative. Children do not, after all, have to perform finger mazes very often. I do not want to argue that the laboratory refinements are not important—it is often only in the laboratory that adequate control over relevant variables may be exercised. But the laboratory is not enough.

**RESEARCH AND GOALS** Much as it may be an attractive ideal, the conduct of research simply "to gather knowledge for its own sake" is not a luxury that the field can afford. Blind children are here now, and those who work with them or are otherwise interested in them carry an obligation to conduct research that has as its foremost goal the optimization of the blind child's chance for fulfilling his greatest potential. Resources are simply too scarce to permit any less



strong statement. Those resources include research time and effort as well as financial costs, and not least important, they include the child's time and energy. The ratio of possible studies to available resources is too high to allow resources to be devoted to low priority research. A close corollary of this argument is perhaps obvious, but it must be made more than once: when a piece of research is selected as high priority, it should be done well and reported well. It is better not to do a study at all than to do it in an inadequate way, using resources that might be more effectively allocated.

I do not want to be misinterpreted here. I am not arguing that every research study should be required to generate direct applications. There is great benefit to be derived from conducting careful descriptive work, and in fact descriptive work is usually a necessary step that has to be taken in order to provide the basis for generating hypotheses about applied aspects. But research should not be done simply for the sake of generating data; it should be done with the explicit goal of providing a better understanding of a problem area and thence with the goal of generating means to ameliorating that problem area.

### Individual Differences

The need for attention to individual differences has been stressed repeatedly. Although many areas of psychology (e.g., personality) have devoted considerable attention to the investigation of the ways in which individuals are significantly different from one another, many areas have taken the approach of studying primarily the commonalities among people. This orientation can be identified by the concentration of results sections on group means, and by the relative neglect of within-group variation. I argue that this latter approach is not a suitable one for the study of blindness, and particularly for the developmental aspects of blindness. The study of commonalities is most suited for populations which are characterized by little variation or by homogeneous characteristics. Blindness is nothing if it is not heterogeneous. Researchers on the blind cannot indulge in the luxury of

studying the group mean and neglecting variation from it, since it is just that variation that contains the potential for the effective individualization that is needed for a heterogeneous population. Substantial variability almost always occurs in sets of research results, and a large proportion of that variability can almost certainly be traced to determinant factors if the effort is taken. Early experience becomes a banner carried by developmental psychologists, and certainly some of the variability in abilities and behavior of blind (and sighted) children is produced by variations in their early experience.

The human development literature has not been very successful in tracing the causality of individual variation to specific aspects of early experience, however. One reason for this lack of success is that adequate ways of characterizing and quantifying aspects of experience have not been developed. This point is just as true of the sighted literature, as it is of the blindness literature, but if anything it is more important to develop effective ways of studying the effects of experience for blind children than it is for sighted since the implications are more directly obvious for the blind. In research on every aspect of development, far more attention must be devoted to assessment of the characteristics of the environment in which the blind child functions and develops. A strong orientation to the importance of the "learning environment" was provided by Norris et al. in 1957. Other writers have stressed the importance of the environment in affecting development in other areas (e.g., social-emotional, mobility). Despite these writings, there has been little organized effort devoted to the study of the characteristics of the environment and their effects on various aspects of development. People who work with blind children (including educators, parents, and other providers of services) have a great deal of potential and obligation for structuring the child's environment in such a way to provide the opportunity for optimal development. The fulfillment of this potential and obligation will be possible only if research is conducted with adequate attention to the etiology and significance of individual differences.

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## What's in a Name . . .

Research performed by the latest batch of National Medal of Science winners has provided supporters of the National Science Foundation with ammunition to use against recent attacks on research projects with trivial or humorous titles. Rep. James Symington (D-Mo.), chairman of the House subcommittee on Science, Research and Technology, has noted that some of the research projects carried out by the awardees "may be faintly reminiscent of the kinds of research derisively questioned on the floor of this House on the basis of titles alone."

Nevertheless, he noted, the studies have ultimately contributed so much to scientific research that they have been recognized with the nation's top scientific award. Symington

pointed out that James Shannon's early work included such investigations as "The excretion of urine in the dog," which eventually led to information on the function of the human kidney and the role of hormones in kidney functions. Among James Neel's published research are studies such as "Concerning the Inheritance of Red Hair," and investigations of the blood, urine and stools of Xavante Indians. And one of Linus Pauling's early papers concerned "The Coordination Theory of the Structure of Ionic Crystals."

"I believe that we should express our gratitude here for the work done, but remind ourselves that science and technology projects, like books, should not be judged alone by their titles," Symington stated.

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# Public Services for the Blind in the United States: Is a Major Breakthrough Possible?

**ARIS A. MALLAS, JR.**

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**Abstract:** *This precis of a major one-year study of the delivery of services to blind persons in the 50 states, two territories, and the District of Columbia notes that during the last ten years there have been major reorganizations of services to the blind in many, many states. The result of this trend, however, has been a weakening of the service delivery system. Only four states were judged to have "superior" programs and only eight as having "good" programs. Several reasons are given for this deterioration, including the inappropriate application of the principle of "economy of scale" which led to the submergence of programs for the blind in large, umbrella-type state programs.*

■ How can government best deliver human resource services to its citizens? How can such programs achieve an intensity of professional service that permits effective training and/or rehabilitation to take place? Do organizational patterns have any impact on the quality of service being delivered? Do new organizational patterns that have come into being in the past ten years—especially the umbrella agency approach—improve the quality of services while reducing unit costs? These are some of the key questions that have concerned administrators of state programs for the blind as well as educators, interest groups, federal officials, and, above all, clients themselves.

To answer these and adjunct complex questions three foundations concerned with improving services to the blind—the American Foundation for the Blind; the Seeing Eye Foundation; and the Visual Aid Foundation—provided funds in mid-1974 for an in-depth analysis. The research was undertaken by Management Services Associates, Inc., Austin, Texas, a corporation that has, in the past 15 years, designed human resource service programs that receive in excess of three billion dollars in appropriations annually.

The study was launched in August 1974 and completed one year later. Serving as key technical advisers to the study were some of the most distinguished minds in the field of services to the blind in the United States. The study has been printed in two volumes, the first being an evaluation of the organization of state programs to serve the blind and a suggested evaluation sequence, while the second provides a legal analysis, i.e., a compilation of the major parts of the laws relating to the organization of state programs to serve the blind (covering 50 states, two territories, and the District of Columbia).

**STATE LAWS SURVEYED** Let us briefly discuss Volume II first. Volume II is approximately 200 pages long and is an indexed compilation of the significant parts of the laws that control services to the blind. It is the first such compilation even done and should be a useful reference resource for all states in the upgrading of their laws.

This compilation discloses that at least three-fourths of the states need to modernize their laws. In general, most states still operate under laws that are piecemeal, inflexible, and not broad enough to permit the scope of services needed for modern-day rehabilitation to take place. Since major parts of state laws track federal laws, there is a degree of consistency, but not enough for comprehensive programs to evolve.

There needs to be a model code designed for this field of governmental service. This is a logical step now that the compilation has been completed. With a model code, states can gradually upgrade their laws using such a code as their frame of reference. This approach has been used in many other fields.

**MODEL EVALUATION SEQUENCE** The first volume is the most significant part of the study and it is written in two parts. The second part is a closed-loop evaluation sequence that permits human resource services to be evaluated in-house without a high cost to the agency or involvement of agency staff to an oppressive degree. If properly implemented it should revolutionize evaluation procedures and make programs more vital. It can be modified to fit all programs for the blind in any state. And from what the study disclosed, effective evaluation is badly needed in at least 30 states at this time.

Volume I does not contain a lot of professional language, but is written directly to the point—even when the truth



hurts! It does not compare one state against another state per se, but state directors should have no problem in identifying the key problems of their state from the text.

Since the study was undertaken by an impartial third party and since those who financed the study permitted complete freedom of research, the study zeroes in on major issues and problems. In essence, it is an evaluation of the effectiveness of present-day public programs for the blind nationwide.

The study compiled data from all states, two territories, and the District of Columbia. It compiled detailed data from 22 states. It undertook field research in 16 states and interviewed or questionnaired hundreds of public officials and clients as well as volunteers and private agency employees and officers who are concerned with services to the blind.

The study's conclusions are grim. Four states have superior programs. (By superior, we mean unusually effective, dynamic, vital, better funded, and with better staff resources. Especially impressive is the quality of their leadership.) Eight have good programs. (By good, we mean the programs are generally effective, but contain elements of weakness that could become more and more serious.) The balance of the states grade off sharply down to very weak programs (12 states are in that category). All of the states with superior programs have separate status with direct access to the governor and/or legislature of that state. This is a significant key to their programs and funding strength.

The study points out that state programs for the blind reached a high point of strength about ten years ago, indicating that they were poised for a significant programmatic breakthrough. In most states, rather than that happening, a series of meaningless reorganizational steps took place. The result has been a lessening of status, strength, and funding on the part of state programs for the blind.

### A Staggering Rate of Organizational Change

In fact, the rate of organizational change has been staggering. During the past ten years, 25 states have changed their organizational patterns. Of these, 72 percent (or 18 states) have changed during the past five years! In the past ten years, 14 agencies have moved into an "umbrella" type agency; four states created separate agencies under the commission form; two states moved their agencies into a Department of Rehabilitation; one state moved from a Department of Education into a Department of Public Welfare; and three states moved into a Department of Education. Since the study began, there were 13 changes of top executive staff.

The study concluded: "This functional area of government is in such an extreme state of fluidity that no effective organizational pattern is emerging from this chronic state of change." Change did not lead toward operational or service improvement, but related more to power struggles within the specific state concerned. "Services to the Blind," the study states, "tend to be a small functional area of government and little understood by the political forces that want to build a power base of more personnel, more appropriated dollars, and thus more political leverage. Thus, it is often the pawn in the political chess game."

**HOPED FOR** While the changes did not make sense  
**RESULTS NOT** from the standpoint of logical patterns of  
**ACHIEVED** administrative or operational development, they also did *not* lead to any of the following tangible results: lower professional worker-client caseload ratios, more operating funds, broader spectrum of services, or more

coordination with other agencies. While many of these accomplishments had been hoped for and often cited as the reason for the reorganization, they had, in fact, not achieved realization. Because of this, 12 states which had undergone major structural changes were modifying their patterns of organization to reduce the negative impact of massive consolidation. Two examples of such states are California and Arkansas.

How did this program deterioration happen? Why did so many changes take place so quickly when so little was known about the impact of such changes? Why was there so much operational fluidity when this functional area of government showed such stability just ten years ago? The answers to these questions lie in a much bigger problem context. These vital services were caught in a wave of public opinion that dictated public welfare reform and public officials reacted without having a sound concept of how to institute reform.

The study discusses at some length the trends toward reorganization, merger, and structural downgrading of the rehabilitation services to the blind function. It depicts the role of the federal government which did exactly the wrong thing at the wrong time and triggered the wrong model for state agencies to copy. While state reorganization did not, in all instances, precisely track the federal government pattern, what happened at the federal level actually misled state after state. By sticking to the "numbers game of case closures," the federal government kept from those who appropriate funds the true state of the services of the rehabilitation function. The study concludes that this must change, since the present system rewards those who in too many instances disregard the long-term needs of clients.

So it boils down to a lack of understanding by both the federal and state governments of what would result from their actions; the pressure to take action and make changes to improve the "welfare mess" and the response of public officials with reorganization across a wide spectrum of non-welfare type services; and the lack of an effective system which showed public officials the negative result of their actions. This in itself would have led to a serious problem for quality services to be delivered to clients, but an even more significant problem was uncovered by the study—a problem so significant it could provide the answer to why American public welfare programs have not succeeded, and will not as they are now organized and administered.

**ECONOMY OF SCALE MYTH** The study uncovers a new principle of public administration which is constantly being violated in our structuring of human resource delivery systems. This principle is the myth of economy of scale when it is applied to human resource programs. The concept has merit when applied to some functions of government, e.g., tax collection, garbage collection, sewage disposal, water cleaning, etc. Regretfully, there has been a tendency to "blanket the concept" across all governmental functions with the assumption that it will work equally well in all situations. It does not! The functions of government that relate to the problems of people especially do not. The study details why it does not.

The role of external interest groups is critical to the success or failure of services to the blind. If such groups had not been badly divided and warring with each other, those who wanted, for their own personal reasons, to "grab" control of services to the blind would not have succeeded.

*(Continued on page 29.)*



# Where Are They Now? Toward More Effective Vocational Goal-Setting for Blind Adults

**CHARLES H. WACKER, JR.**

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**Abstract:** *Three hundred blind adult clients of a vocational training agency were recently surveyed to determine, among other facts, their employment status after leaving the program. Several findings about client self-motivation, self-confidence, and vocational goal-setting are presented. On the basis of these findings and a review of the vocational goals of ten clients in the survey, a work therapy plan for clients with psycho-emotional handicaps which can cause aberrant goal-setting behavior is proposed.*

■ Three hundred blind adults between the ages of 18 and 66 who had participated in the rehabilitation program of the Vocational Independence Program (VIP) of the Foundation for the Junior Blind between its inception in July 1970, and the time of the survey, October 1974, were surveyed to evaluate the effectiveness of the rehabilitation effort in terms of each client's present vocational status in society. The survey was done primarily by telephone with some backup by mail and personal interviews. The survey instrument is reproduced at the end of this article.

The survey was conducted from October 1974 to January 1975 by four VIP staff members; three from the Vocational Department and one from the Educational Department. They were able to contact 211 of the 300 clients who participated in the program. Sixty-six (37 percent) were here for the Stage I evaluation (psychological, social, medical, vocational, academic tests to determine feasibility by the full training rehabilitation program); 113 took part in the full Stage II training program; 32 were here for Stage III vocational guidance and placement only. Average age of the entire sample was 29. Average age of the Stage I evaluatees was 30, with the youngest 18 and the oldest 66. Average age of Stage II and III clients was 28 with the youngest 18 and the oldest 60. Average length of stay in the Stage II program was 5-3/4 months.

Statistically, in terms of average age, the clients in all three stages of the program were within the optimum employment age—25 to 35 years. Of the 133 total placements made from clients in all three stages during the five-year period covered by the survey, only 56 (42 percent) could be classified as competitive employment. Of this number, 41 (73 percent) were still working at the time of the survey, although not necessarily at their job objective, or in the same job in which they were originally placed. Despite the low competitive-job placement figure, the total survey population had either sought jobs independently or through a rehabilitation agency.

**THE ROLE OF GOAL SETTING** Although goal setting appeared to play an important role in job pursuit and achievement (89 percent of the clients in the Stage II training and vocational placement program had specific vocational goals), there was no evidence to substantiate the realism of the goals, or that there was a correlation between vocational goals and type of competitive employment in which the clients were placed. On the basis of observation of the total client population, it might be safe to generalize that for each ten clients entering the Stage II program with predetermined vocational goals, on the average, eight require extensive vocational guidance and counseling to try to modify their goals to meet the demands of industry and make them compatible with the client's competitive employment potential.

Unrealistic goal-setting behavior was as prevalent among the adventitiously as the congenitally blind. For example:

*Client A:* Female, age 26, congenitally blind, came into the program with a vocation goal of concert pianist—a totally unrealistic objective in terms of her limited musical education, low scores on the Seashore Musical Abilities Test, demonstrated mediocre talent, and introspective shyness. Despite extensive vocational and psychological counseling aimed at changing the goal to a more realistic one, such as clerk-typist (the client was proficient at this skill, could type 55 wpm error free, and was able to transcribe efficiently from dictating equipment), she persisted in her original objective. Upon termination from the program she continued to pursue



# Where Are They Now?

## FOUNDATION FOR THE JUNIOR BLIND VOCATIONAL INDEPENDENCE PROGRAM

### CLIENT SURVEY

STAGE: \_\_\_\_\_  
NAME \_\_\_\_\_ Age \_\_\_\_\_ Sex \_\_\_\_\_ RCB \_\_\_\_\_  
Address \_\_\_\_\_ Phone \_\_\_\_\_  
Date of Survey \_\_\_\_\_ Date of Entry Into VIP \_\_\_\_\_  
Date of Termination \_\_\_\_\_ Vocational Goal at Termination \_\_\_\_\_  
Present Goal \_\_\_\_\_  
Are you working at present? YES \_\_\_\_\_ NO \_\_\_\_\_  
(if "NO")  
Are you engaged in a vocational training program that would  
prevent you from taking a job? YES \_\_\_\_\_ NO \_\_\_\_\_ If "YES,"  
what is it? \_\_\_\_\_  
What have you done to find a job? \_\_\_\_\_  
\_\_\_\_\_  
(If "YES")  
Job description: \_\_\_\_\_  
How did you obtain your job? \_\_\_\_\_  
Do you use tools? \_\_\_\_\_ What kinds? \_\_\_\_\_  
Name of your employer \_\_\_\_\_ Phone \_\_\_\_\_  
Name of your supervisor \_\_\_\_\_  
Starting salary \_\_\_\_\_ Present salary \_\_\_\_\_ Any promotion  
or change of duties? \_\_\_\_\_ Any change in employer? \_\_\_\_\_  
Means of transportation to work \_\_\_\_\_  
What is your living situation:  
Parents \_\_\_\_\_ Own apt. or home \_\_\_\_\_ Board & Care \_\_\_\_\_ Other \_\_\_\_\_  
What part of the VIP was most valuable to you? \_\_\_\_\_  
What part of the VIP was least valuable to you? \_\_\_\_\_  
Comments and/or recommendations \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Supervisor's Report

Is there a competitive standard on the job? \_\_\_\_\_  
Is worker meeting this standard? \_\_\_\_\_  
Is worker doing satisfactory work? \_\_\_\_\_  
If worker should quit, would you hire another blind person  
to replace him? \_\_\_\_\_  
Are there additional jobs that a blind person could do in your  
department? \_\_\_\_\_  
Are there openings at this time? \_\_\_\_\_  
When? \_\_\_\_\_

her initial goal and, as a compromise, was placed in a music store as a sales clerk where she remained one month. She is now at a junior college, pursuing her original goal of concert pianist, and is being encouraged and reinforced in this career by several people outside of the rehabilitation program.

*Client B:* Male, 31, adventitiously blind, insisted throughout the Stage II training program on pursuing his predetermined goal of disc jockey. His vocational counselor arranged interviews with several local and network radio stations in an effort to establish the feasibility of this objective. In addition, the client mailed letters of application to dozens of radio stations in California and on the East Coast. Consensus from the world of work was that the goal was unrealistic because of the limited number of openings and the necessity of sight for specific functions which an individual must perform as a prerequisite to becoming a disc jockey. The client was counselled into the more practical fields of darkroom technician, computer programmer, small engine repairman based on evidenced skills and interests in these areas. But, like Client A, he remained adamant and terminated from the program pursuing his initial goal. To date, he has not achieved this objective, nor has he attained an alternate work goal or permanent employment.

### Goal of Protective-Type Intellectual Career

*Client C:* Male, 26, congenitally blind, was persuaded by family and friends to follow a protective-type intellectual career, simply because they could not envision him performing independently in a competitive environment. He had some journalistic talent and a mediocre knowledge of Spanish. When he came to the program, he spoke vaguely of a career as a translator at the United Nations. He had no practical understanding of the task or the agency, and was totally unaware of the world of work. He remained in the program for almost a year because of the psychosocial problems which produced learning and adjustment barriers. During that time, indepth vocational counseling failed to make an impact on his goal setting and he continued with the initial "protective intellectual objective." However, he did agree to attend a school for medical transcribers in lieu of college, for which he was intellectually ill-equipped. He completed training at the school, but when it was time to go to work as a medical transcriber, he reverted again to the goal of translator and insisted that that was what he really wanted to do. Result: no steady work or prospect of it in the foreseeable future.

**FAMILY PRESSURE** *Client D:* Female, 30, congenitally blind, also reacted to family desires for a protective career, and accepted pressure to become a school teacher. She was assigned for student teaching to an elementary class where, because of her inaptitude for this kind of activity, she barely completed the assignment to receive her credential. She was unable to discipline the children who took advantage of her blindness and compounded her breakdown in self-confidence. This permitted her to fall back upon her own "personal" choice of entertainer which she felt she should have pursued all along; a blind folk ballad singer in a night club. The client had never seen a night club, had no concept of the demands of the job having spent the majority of her life in a church-related community and college, but the appeal of escape through the protective cover of blindness motivated her. The vocational counselor devoted considerable time testing and counseling the client in order to



bring her around to the realistic goal of teleservice representative for the Social Security Program, which she finally accepted. She still views this job as an interim step to getting into the entertainment field.

### Unable to Accept Changes Resulting From Blindness

*Client E:* Male, 27, adventitiously blind, had been a production worker all his life, heavily relying on sight for his maximum functioning ability. His knowledge of English was poor, and he was unable to accept the fact that considerable adjustment in his vocational skills was necessary now that he was blind, primarily because he did not have the vocal and written skills to communicate comfortably. The nuances of understanding through facial expression and hand gestures, on which he previously relied, were no longer available to him in his work and social relationships. Yet the client insisted upon returning to his previous trade as packer in a cannery, rejecting other, more realistic alternatives offered. He would cooperate with the vocational staff only in the pursuit of this objective. Despite frequent contacts with the union and previous employers in the canning industry, the client refused to accept the fact that he was no longer competitive material for these jobs. He preferred to wait for what he termed the "right job" than to go to work in other skill areas, such as production assembly, for which he would have qualified.

*Client F:* Female, 26, adventitiously blind, wanted to pursue a career in television. Although the woman was attractive, the reality of breaking into this field in any capacity was remote. Over a period of six months, she was counselled vocationally and given the opportunity to explore for alternatives, such as food service and clerical work. Without relinquishing her initial objective, she accepted a job as a clerk-typist with a civil service agency, but psychologically remained attuned to that "great television opportunity" that was sure to come along.

**NEED FOR GOAL CHANGING** It would appear that goal setting, although a primary concern in vocational counseling, is secondary to the need for goal changing. As evidenced by this representative sample of blind clients, almost all had work objectives, but the nature of these objectives was invalid outside of the blind world. Somehow, the demands of competitive industry were not being effectively communicated to the individuals. They verbalized acceptance, but did not internalize it to the extent that they were motivated to change their goals.

A counselor can talk a client into listening to his recommendations because the client has been indoctrinated to accept the authority of the program. Everything that had taken place to date was administered by benevolent, parental-type authorities: his state rehabilitation counselor who referred him, the program's staff, the doctors and psychologists and social workers with whom he has contact on a regularly continuing basis. But there was an absence of self-generated motivation necessary for meaningful integration into the mainstream of work despite the fact that the vocational counselors have stressed the need for personal and vocational independence. The subliminal school-type protective atmosphere of the program is overriding, and the men and women (even though called clients) look upon themselves as insecure students isolated from the competitive world they are being trained to enter.

**REGRESSION TO INITIAL GOAL** A regular pattern persists with almost every client upon the realization that his time in the program is nearing completion. Whether his own choice, that of the staff, or of the state rehabilitation counselor, he experiences a psychological depression which further demotivates him and shatters his self-confidence. One escape is to conceal his reaction and comfort his psyche by regressing to the unachievable goal.

This escape is obviously rationalized. Of all the Stage II and III clients queried about the effectiveness of the training program, 62 percent had one or more of the following complaints: 1) that the program was to blame for their personal lack of motivation and confidence, 2) that there was not enough personal freedom, treatment was immature, 3) that there was the need for more realistic job information counseling, 4) that teachers were inexperienced, and 5) that attitudes, administration, even food, was poor. By their termination dates, most clients are trained successfully in the blind adaptive skills. But they are often psychologically incapable of applying them successfully because of the excessive amount of stress placed on them by realistic vocational demands. Somehow there is weakness in the program's effort to convince the clients that, despite their handicap, their individuality remains intact. Simultaneously, there is a breakdown in educating society which persists in setting up a social barrier of predominately negative attitudes toward blindness: fear, which blurs the viewing of blind personalities into all looking and behaving alike; as an anathema to be avoided, dismissed with platitudes; as sick, therefore to be waited on in institutions.

These barriers must be replaced by feelings of normality on the part of the blind persons, and by the mainstream of society, in order for the vocationally independent blind person to function and behave effectively.

Special emphasis must be placed on the psychological reactions of the client to the whole rehabilitation process. The stimulation of interest, the acceptance of devices and techniques to minimize the handicap, and the introduction of new or different ideas without overriding traditional concepts and methods are factors found to influence satisfactory acceptance of change.

Consideration should be given to the introduction of an interim work therapy training phase in the rehabilitation process. Under the direction of a skilled work therapist, a realistic vocational environment can be produced within the training program in which clients are able to perform meaningful competitive tasks leading to realistic vocational goals.

The respect accorded by the therapist in this real work environment can be transmitted into the self-confidence and motivation so sorely needed by the client. Careful selection and pacing of goal-evoking tasks in terms of capacities and interests will pose a challenge and lead to individual probing and ultimate success through the personal effort. This favorable psychological response will reinforce realistic goal setting and the recommendations for change made by the vocational counselor.

Structurally, the interim-work-therapy phase of the training program would occur between the initial evaluation, Stage I, and the training, Stage II. Entrance into the phase would be determined by initial evaluation at the time of intake, and would also be available as a remedial phase at any point in the training or vocational stages of the program. By helping to meet the need for greater personal fulfillment, it should lead to more effective vocational readiness through practical goal setting.



# The Development of a Spatial Sensing System for Blind Children

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**Abstract:** *The development of spatial concepts in young blind children would, it is thought, be enhanced by the child's learning to use a sonar-based aid. Building on the work done on sonar-based orientation and mobility devices for blind adults, researchers in New Zealand are currently developing a short-range environmental sensor especially for congenitally blind children.*

■ In this article we describe a research program aimed at building an electronic sensing aid to assist blind children in the development of spatial awareness. This children's aid will be the latest in a family of sonar-based aids, including the sonic torch, the binaural sensory aid or "sonicguide," and the monaural sonic glasses, all researched and developed by teams under Professor Leslie Kay, first in England and then in New Zealand. While this new aid will have many features in common with these earlier devices, it will also represent a break with tradition in that it is being designed explicitly for environmental sensing and to foster sensory-motor development. This aid is to be used by the congenitally blind or those who lose their sight early in childhood and is conceived primarily as a means of allowing a blind child to learn about his/her immediate spatial environment and the relation of his/her own body to this environment.

A sensory aid, such as the sonicguide, can provide an adult with a partial substitute for the missing sensory channel of vision. With training and practice, a high degree of environmental awareness and mobility can be achieved. Nevertheless, many users, in particular the congenitally blind, are considerably handicapped by their lack of knowledge of the environment and poor experience with spatial concepts. These abilities develop early in the life of a sighted person and are continually practiced; in the blind, such abilities develop only with great difficulty.

**SPATIAL CONCEPTS NEEDED** Reduced mobility is only one of the consequences of the lack of environmental experience. Knowledge of objects in the environment, understanding of spatial concepts and the terms used by the sighted, sensory-motor grace, co-ordination, and, too often, incentive to go out in the world also suffer as a result of this lack of environmental contact. No aid given to an adult can, by itself, overcome the cumulative deficit of spatial skills. An alternate approach is to minimize this deficit by providing the sensory aid when the individual is still in a formative stage of development. Thus, the new aid is intended to enrich the child's spatial experience so that more nearly normal, i.e., sighted, stages of development and forms of behavior can be achieved.

In its present form the sonicguide is a secondary aid to mobility for use in conjunction with either a dog guide or long cane. The range of about 20 feet and field of view of 60 degrees were chosen to be of particular use for mobility. It is important to realize that with basically the same sonar technology as that developed for the sonic glasses, other types of aid can be produced. By varying device parameters a family of alternate devices can be developed. Each member of this family of aids will show characteristic patterns of advantage and disadvantage in a given role.

The specific role of the new device for children is the provision of better "spatial awareness" for the wearer. While "spatial awareness" is fundamental to "mobility," we feel that it is a more basic and broader concept covering several levels of human ability. At the "perceptual" level, it involves the awareness of the existence of objects and their spatial characteristics, such as location and size. At the perceptual-motor level, it includes the awareness of one's own body in space, the position of the body, head, and limbs, and the consequences of the movement of these parts. At the cognitive level, we are aware of the environment in terms of verbal labels used to identify objects and describe their most salient physical characteristics; thus, an object may be a desk



and be made of wood. There are also terms for describing the spatial relations linking objects: simple descriptions such as "under," "beside," or "behind" and more complex relations such as "in perspective." The acquisition of each of these levels of ability relies heavily on vision in the sighted person and is seriously hampered in the blind person.

**AN AID FOR BLIND CHILDREN** We feel that with present technology, children can be provided with aids based on the Sonic guide concept, which could substantially assist the development of spatial skills. This new role will require very much modified versions of the sonicguide; before considering what forms these modifications should take, however, it would be useful to consider the general characteristics of the existing device.

Like the Sonic guide, the child's device will be a sonar-based aid capable of detecting objects ahead of the wearer, as well as some distance to the side. The Sonic guide not only detects obstacles but senses the environment; that is, it provides a representation, or picture, of objects in their two-dimensional positions in space. However, rather than a visual picture, what is given is a picture in sound. The forward distance of objects is specified in terms of the pitch of sounds, distant objects being high in pitch, near objects being low. Position to the side is given in terms of the differential loudness or intensity of sounds in the two ears, such that objects detected seem to be emitting sounds from their actual spatial position. This cue utilizes the ear's natural ability to judge the positions of sounds in space; it is similar to that used as the basis of stereo sound reproduction. The "picture" of the world provided by the device covers a field of view of 30 degrees on either side of straight ahead and registers objects at a distance of up to 20 feet.

Since the sonar system responds to the surface characteristics of environmental objects, a degree of object recognition is possible on the basis of tonal quality. Hard, smooth surfaces (e.g., glass, metal) give more musical, pure tones, while rough surfaces (e.g., brick, unfinished wood) return a rougher sounding note with a "shushing" character on top of the basic tone quality. These tonal patterns act like signature tunes in helping to recognize objects. Man-made objects such as fences give characteristic sounds, depending on their construction. The sound received from a fence of overlapping wooden slats was described by one adult user as "the quacking of ducks." Many natural objects can also be discriminated; for example, small- and large-leafed trees are distinctly different and both differ from trees without leaves.

These spatial and tonal categories of information provide a potentially rich source of information about the environment over and above a simple indication as to whether the path ahead is clear. The information provided in some ways parallels vision in that, for example, objects appear in perspective. However, in other ways it is different from vision and acts almost as a new sense (this is beyond the scope of the present discussion and will be treated in forthcoming papers).

### Environmental Sensing

We would not claim that all persons who have used the sonicguide have achieved the degree of environmental awareness we have described above. However, with improvement in devices (see Thornton 1974, for a discussion of the new model sonicguide) and, probably more importantly, improvement in training procedures, we expect that many more users will achieve a high level of skill. We have been encouraged to move on to a device intended specifi-

cally as an environmental sensor by the reactions of many successful blind users who have reported being able to picture the environment in a manner which has provided both pleasure and increased mobility.

Considerable gains in spatial resolving ability (or the sharpness) of sound images can be made over existing binaural systems if their chief aim is environmental sensing rather than mobility. For example, resolving power goes up as the forward range of the device decreases. The 20-foot range of the adult mobility aid is less important to a child than the increased detail a short-range device provides. Depending on the age of the child, a maximum range of between five and ten feet would provide a useful extension to the wearer's senses. This would be adequate to locate objects indoors and around the house. There is also quite a range of textures in the home (e.g., glass, plastic, wood) to allow the object recognition capability to be used.

We have here an example of the type of decision an engineer must make in designing a device. Important characteristics of the binaural sensor can be varied considerably depending on both the purpose and the population the device is to serve and quite different forms of aid can result.

**SENSORY MOTOR SKILLS** While the major benefit to the child from the use of an environmental sensor should be the provision of knowledge about the appearance of the world, we expect benefit also in a variety of sensory-motor skills. For example, the ability to sense the world at a distance may encourage exploration and help to break the often noted tendency of the blind child to withdraw into him/herself. The sounds given by the device may act as a source of stimulation and actually encourage activity.

One of the more significant gains of the device will be enhanced feedback about the wearer's own actions. This comes about because the "pictures" that are provided change just as the normal visual image does when the head and body move. These patterns of change have the potential to assist the wearer in developing more normal posture and patterns of movement. One very important form of feedback is position of the hands. Our observations with our first short-range devices show that the hand is easily picked up and can be guided to other objects by sound alone; this is not easily done with the adult aid. The importance of finding the hand visually and using it to explore the surrounding world is well attested in the literature on both sighted and blind children (Bower, 1974). The ability to provide substitute feedback may be one of the most important features of the proposed aid in allowing the blind child to develop "sighted" forms of behavior.

### Elimination of Mannerisms

Because this aid is head-mounted, it has the potential to help the wearer recognize and correct some of the common mannerisms found in blind children. For example, blind children show a tendency to bend over and hold their heads down. With the device on, a strong signal would come back from the person's own body, or the floor, which could serve as a reminder that the wearer's posture was unusual. Again, a tendency to explore the face with the hands and, in particular, to rub the eyes is common in blind children. The device would also give strong signals when the hands came close to the face. Children could learn a simple rule to cover these situations, namely that when sitting still and with correct posture no signals should be heard. The aid could even be



left on in a classroom situation since if the child is sitting up and properly attending, there should be no signals to interfere with the teacher's instructions. Similarly if the device gives signals when the wearer is moving, this indicates that objects are near. In the absence of signals, the wearer is safe from collision and can concentrate on his other senses.

**TRAINING THE CHILD TO USE AID** A consideration of the development sequence of the sighted child would suggest that a device be provided at an early age. For example, hand regard and hand grasping are normally achieved from six months to one year of age in the sighted child. However, provision must be made for the child to learn about the device itself and the inability to use verbal instruction must be seen as a source of difficulty in training. We are aware, even at this stage of a conflict between a theoretical and a practical consideration, the one indicating that a device should be designed for as young a child as possible and the other suggesting that successful training is more likely with older children. (A personal communication from Dr. T. G. R. Bower, at present in the Department of Psychology, Stanford University, and working independently of the Canterbury group, has indicated that an infant of less than six months of age has been taught to use a modified sonicguide to reach for objects held in front of its head. This suggests that the problems of training infants may be less severe than we anticipated.)

Whatever the precise age of the intended users, training will have to take a form different from that used with adults. Opportunities for verbal instruction will generally be fewer with children and the emphasis will have to be on the child learning as a by-product of his/her other activities. It is hoped that much of the initial learning of the meaning of the sounds can be done as play exercises. For example, a large plastic ball will give a good auditory signal through the aid. Training in the use of distance and direction codes could be achieved as part of a game in which the ball is rolled toward the child and caught. Again, what is possible will almost certainly vary with the child's age.

### The Construction of the Aid

As a result of recent technical advances it is now possible to construct miniature ultrasonic transducers and light-weight electronics that can be fitted to even the smallest child. For other than the prototypes it is likely that the relatively new "thick film" electronics will be used throughout the aid. Thick-film technology is a blend of fifth-century, screen-printing arts and twentieth-century electronic engineering which enables much of the circuitry and components to be printed onto bases or substrates usually of a ceramic material. The remaining components, chosen for best circuit compatibility are bonded onto the substrate and the entire circuit suitably packaged in plastic or a ceramic material. It is the least expensive way of producing microcircuits in the numbers likely to be required. The sonicguide now under production by Wormald Vigilant makes use of thin film receiver circuits that are built into spectacle frames, the transmitter and control circuits are of conventional construction.

In the sonicguide, one transmitting and two receiving transducers are mounted at the bridge of the spectacle frame in an inverted triangular configuration. Where present transducers have a diameter of either one or 1.5 cm, transducers

having a diameter of 0.5 cm are now becoming possible; these allow for both improvements in aesthetics and the ability to operate the sonar at higher ultrasonic frequencies to produce "sharper" auditory image resolution. Since an aid in spectacle form is unlikely to be acceptable in use for young children, a head-band mounting is to be used.

**AUTOMATIC VOLUME CONTROL** As the result of recent research work, an automatic level controller will be incorporated in the aids for children. This control ensures that the device sounds at all times remain audible against the varying ambient sounds of the environment. Using the correct form of control, the user is unaware of changes in the sound level of the device, even when the ambient sounds change rapidly. Masking by environmental noise is eliminated and this allows the device sound level to be reduced to a minimum that is still compatible with its proper operation. This facility is not available to adults at present but would contribute considerably to the ease of operation if available.

The choice of operating characteristics of devices such as the sonicguide is inevitably the result of compromises between conflicting operating requirements. We have seen so far that a conflict exists between operating range and accuracy of resolution. In the adult device, range was felt to be more important than resolution in the assistance of mobility. In the child's device it is felt that resolution may be more important than range for spatial awareness.

In our prototype devices we hope to incorporate a degree of flexibility of operation not seen in existing systems. This will be achieved either by building a family of devices with different parameters or by building single devices with provision for variations in parameters. This procedure will allow us to determine by actual experience what the optimal device characteristics should be. This approach may lead to production devices incorporating a range of operating characteristics which may be chosen according to the user's needs. Sensory aids should not be produced like Henry Ford's Model T's ("any color you like as long as its black"). In the long term, an armamentarium of aids must be developed capable of meeting individual needs (Clark, 1975). Of course, the cost is a limiting factor.

### Summary and Acknowledgment

In this brief account we have attempted to indicate the likely course of development of a sensory aid for children at Canterbury. We have been particularly concerned to indicate likely problem areas both with reference to technological development and actual use. It is shown that a family of sonic sensory aids could meet the various needs of children as they develop. Comments on the program will be welcomed.

The authors thank Professor Leslie Kay for his efforts in developing and encouraging the child's aid program and for his assistance in the preparation of this article.

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# Your Community, Your Agency, and You

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*Mr. Rosenblum is executive director of the Lighthouse of Onondaga County, Syracuse, New York. This article is based on a paper delivered at the biennial meeting of the American Association of Workers for the Blind, Atlanta, July 20-23, 1975.*

**Abstract:** *The challenges to the status quo of the blindness system, through the movement toward increased accountability and through consumer activism, demand a response. Two detailed critiques of the blindness system have been largely ignored however. The current stance of most agencies for the blind subtly reinforces society's stereotypical attitudes toward blind persons. A new kind of agency is needed and the social workers employed by such an agency would need to redefine their roles. The efforts to cooperate with community agencies and enhance the services they offer to include blind persons need to be stepped up.*

■ Professionals in agencies serving blind people are facing conflicts similar to those faced by the field of social work. We in social work are being asked to demonstrate to the purchasers and consumers of our services the validity and pertinence of our products. We are asked to justify the cost of our service through functional cost accounting. We are asked to draw written contracts with our consumers so that the consumer is assured of receiving the services he wishes. We are asked to set goals and demonstrate that they have been achieved through such systems as management by objectives. And the people who are asking this are the people with the real power, the people who control the dollar. They are saying, in a sense, that we have been inefficient, poorly managed, and that the funder and the consumer have been short-changed. They continue to accuse us of being more concerned with our roles as professionals and with maintaining the structures of our agencies than we are with the people we are supposed to be serving. We, as members of the profession of social work, are accused of maintaining the status quo and of protecting our jobs. We, as agencies serving blind people and as professionals within those agencies, are accused of precisely the same thing.

**THE BLINDNESS SYSTEM** The field of blindness has, for the past several decades, been involved in a debate about the appropriateness of the services of the blindness system. (Should the normal blind child be educated in community or residential schools? Can, or should, blind persons be placed in general workshops?) Perhaps the most significant debate arose when Robert Scott's book, *The Making of Blind Men* (1969), and Donald Schon's article, "The Blindness System" (1970), appeared over five years ago. Both of these well-documented, thoughtful studies struck at the heart of what we call the blindness system. The blindness system was described as a non-system. (It was criticized as focussing on only 20 percent of the blind population, specifically, either children with the single handicap of blindness or adults of working age and potential for employment. Agencies for the blind were described as taking persons who became blind and molding them into the stereotyped and stigmatized images of the "blind man.")

And, interestingly, more than five years later, except for some heat and anger, there has been little or no response to Scott or Schon. The very immobility and "head in the sand" attitude that Scott and Schon talk about has been demonstrated in the failure to thoughtfully evaluate what they have described. The failure of both the public and private agencies to respond to the massive shift toward the severely handicapped and the aging of the blind population demonstrates the non-coordinated, non-planned, non-system in the field of blindness. In the private sector we wait for the federal and state dollars to tell us whom we will serve, as though we expect the government bureaucracies to take the leadership and to tell us what is the latest philosophy in rehabilitation. And as the voluntary dollar dwindles, more and more we provide what government is willing to buy. And the government bureaucracies are hooked into what they have sold to the legislatures, that the best and most important services to the blind population consist of quality education for blind children, and quality vocational training and job placement for blind adults. And, in a sense, this is what we in the field of blindness have sold to our communities. And in doing so, and thus enhancing the image of our agencies, and by projecting that only we have the magical knowledge to work with blind people, we continue to make "blind men" in the manner described by Scott.



**“The blind person who wishes services . . . He cannot shop for service, but must receive services through the agency for the blind, no matter what the quality.”**

Many people have said it. Next to the actual loss of sight, the attitude of society is the major handicap faced by blind people. We have developed many sophisticated tools to compensate for the physical loss—braille, talking book machines, large print books, many special aids and appliances, low vision lenses, peripatology, guide dogs, laser canes, adjustment to daily living techniques, educational tools and techniques, and so on and on. But in the area of positively affecting the attitudes of society, from the man in the street to our peer agencies, we do almost nothing. Most of our total effort in community education seems to be in the area of building a better community image of our agencies, rather than a better image of the person who happens to be blind. Those few efforts devoted to this latter area seem superficial and distorted. They tend to show only the successful and dramatic rehabilitation (most often related to “How great a job our agency does”). But where do we tell the community the nitty-gritty of the impact of society’s attitudes on the person who is blind? And the question is not really “How do we change the attitudes of society?” but, “What role are we and our agencies playing in perpetuating these attitudes?”

### **Segregation or Integration**

Father Thomas Carroll, in his book, *Blindness* (1961) wrote, “Basic to any consideration or organized work for the blind is the question of the fundamental viewpoint of the philosophy of blindness, animating and directing both work and workers. If blindness is such an overwhelming handicap, then nothing can be done except to ease the lot of blind persons in segregation—for education, for work, for recreation, for housing, is the only possible answer. But if blindness, though a major and multiple handicap, is one that can be overcome to a degree that makes normal life and work possible for the majority of blind persons, then our efforts should be toward their integration into sighted society.” What then is your attitude and the attitude of your agency toward the person who is blind?

We would assume at this point in the development of services for blind people that we would all agree that blind people should be part of society. Most agencies would claim that their programs are designed to prepare the blind person for this. But what an agency claims and feels it is doing may be quite different from what it is accomplishing, particularly in terms of the image of blind people which it projects to the community. What image does your agency project? Is the image one which says to the community, “You needn’t worry about blind people. We can meet *all* (or most) of their needs through our unique special programs and expertise.”

**THE AGENCY AND STEREOTYPES** If this is the image which is being projected, then isn’t the agency supporting the stereotype that blindness is an overwhelming handicap where nothing can be done except to ease the lot of blind persons in segregated settings? Isn’t the agency saying to the community that blindness is so special

and unique a handicap no matter what strengths an individual may have, he must meet his total needs through the agency for the blind? And in another sense, isn’t the agency saying to the community that it, and all of its services, are indispensable to blind people, and consequently to the community. Thus, by presenting the image that *any* problem a blind person has must be handled by an expert in blindness, agencies can continue to perpetuate themselves and their funding.

Where does this leave us as social workers? We function with the principle that an individual must be seen as a total person and in terms of his total strengths and weaknesses. Yet, too often, because we in agencies for the blind deal with people with a common disability, we are lured into the position of seeing the disabling condition as primary, and the total person as secondary. We begin to (consciously or unconsciously) accept the stereotype that the only agency that can meet the needs of blind people is the agency for the blind.

**GELLMAN ON CLIENT TREATMENT** I think Dr. William Gellman presented a somewhat different, but also valid, point in a paper presented at a conference sponsored by the Lighthouse of Onondaga County. “Our social agencies, our rehabilitation agencies, the organizational constellations treat clients as clinic patients, persons who are objects, persons who are manipulated, rather than subjects or active participants in the process. The status accorded disabled persons is seen in the demeanor of the receptionist, the unwitting attitude of the counselor or social worker, in agency preoccupation with agency tasks, rather than client problems.

“As an applicant, the special client, the disabled, the disadvantaged confronts a closed, self-sufficient subculture, with an unfamiliar value system. He is a stranger, an outsider, who seeks help from a supposedly omnipotent therapeutic facility. He proceeds through intake, initial screening, and diagnosis. If he meets the predetermined selection criteria of potentiality, the rehabilitation potential, he is accorded the status of helpee. As a helpee, he occupies a relatively low level in the organizational hierarchy. He is manipulated and moved by forces over which he has little or no control. His rehabilitation goals are set by others. He is seldom accorded choice, or if he is accorded a choice, it is that of either accepting or rejecting a course of action presented to him by his rehabilitators, social workers, helpers, or the people who do good to others. Time, place, and the type of activity are set by those who help.

### **The Effects of Our Unconscious Feelings**

“Seldom do we see the person helped, the person who is our immediate concern, participating in the process. Choice, from the helpee’s point of view, is a choice among feasible alternatives. We, in our wisdom, as social workers and rehabilitators, tend to present choice as a yes or no, the human maze, right or left, come with us or leave. This attitude mirrors our whole feeling toward disability and disadvantage. With ourselves, we fear disablement, low status, being disadvantaged. In our organizational structures we create, as it were, the mirror image of our own fears and invidious distinctions.”

Dr. Gellman was not addressing himself to the agency for the blind, per se, but rather to the problems faced by the disabled, disadvantaged person entering a rehabilitation facility. But how many agencies for the blind fit this image?



Where and how does the blind person have choice? A comment about duplication of services—this concept is anathema to the funders and providers of service. It is uneconomical, it wastes valuable manpower, it confuses the consumers of the service, etc., etc. But I maintain that the attempt to eliminate duplication of service primarily benefits the agencies and the staffs of those agencies. The blind person in most communities has no choice. Where there is one agency for the blind, he must use that agency or receive no services. Even in cities which are large enough to support several agencies for the blind, they frequently come together in order to divide the population or decide who provides what services to whom in order to eliminate duplication of service. The blind person who wishes services, therefore, becomes a captive of the blindness system. He has no choice. He cannot shop for service, but must receive services through the agency for the blind, no matter what the quality.

The blind person either conforms to the agency structure or he is penalized by the withdrawal of the service. And the service is available nowhere else. Thus, when we say to the community and the blind person that we are supposedly the only, in Dr. Gellman's words, "omnipotent therapeutic facility" available to the blind person in our community, it gives us power—power over the disabled, disadvantaged person. He can go nowhere else, for everyone knows that we are the "experts" and are the only ones who "really know how" and have the facilities to help. In a sense, our very existence and the wide range of services which we offer segregate the blind person from his community.

**A NEW AGENCY MODEL** How then can the blindness system truly integrate blind people into the mainstream? If this is to be accomplished, then the prevalent model of the large specialized multi-functional agency must be restructured and a new, smaller, community-focussed model must emerge. This agency model could have the following primary functions:

- 1) The agency should enable generic community services to become accessible to blind persons. Where services are not accessible, or do not exist within generic agencies, then the agency for the blind should attempt to develop the service within the generic structure through the conscious and pertinent use of community organization tools.

- 2) The agency should provide, where necessary, consultation, staff training, *and loaned staff* to community agencies in order that they might better serve blind persons.

- 3) The agency must play the role of the intercessor—the ombudsman—to assure quality and meaningful services from those other agencies in the community with which its clients will be involved.

- 4) The agency should provide *only* those services which do not exist, and which are impractical to develop elsewhere in the community.

### New Roles for Social Workers

What then is our role as social workers in such a system? First, we must see our agencies not as enclosed, self-sufficient systems, but rather as flexible and dynamic tools which can effect changes in the community. Let us examine the role of the social worker as the advocate of the blind person, as the intercessor, the ombudsman. Blind people, as do all disadvantaged people, have to deal with the bureaucracies established ostensibly, on one hand, to provide needed services and, on the other, to protect the public and

private funds which pay for those services. Many people have to go through the bureaucratic morass of SSI, public housing, medical clinics, vocational rehabilitation, etc.

A primary role, then, of an agency for the blind—and within the agency, specifically, the social worker—is the provision of the tools to obtain the community services needed and desired by the blind person. This means that a social worker in the agency for the blind must have knowledge of 1) the services offered by community agencies; 2) the formal procedures set up to provide those services; and, 3) the methods by which he can by-pass those procedures in order to focus the community agency on the client rather than the process. It is this last point which takes the greatest skill. The knowledge of community agencies and procedures can reside in a community resources file, but the knowledge of how to utilize those resources takes a strategist, or, in this case, a social worker. A case in point:

Mrs. Y. is a totally blind woman with four small children, who receives aid to Dependent Children. Mrs. Y. needed, and asked for, 16 hours of baby sitting each week, to be paid for by the Department of Social Services. Mrs. Y. presented her request to her D.S.S. worker. The worker told her that she didn't think it was possible. Mrs. Y. brought the problem to one of our social workers. The worker called the D.S.S. worker. The D.S.S. worker said that she would check with her supervisor. She then called back and said that they would allow Mrs. Y. four hours of baby sitting a week. The worker then brought the problem to her supervisor who was also director of the agency. In a sense, a strategy meeting was held; the strategy: the worker wrote a detailed letter to the D.S.S. worker, *with* a copy going to the D.S.S. worker's supervisor, outlining in detail the need for 16 hours of baby sitting for Mrs. Y. Thus, the worker entered the formal process.

### A Face-to-Face Encounter

In addition, the worker requested a joint conference between the D.S.S. worker, her supervisor, the agency worker, *and* the agency director. The goal of the conference was to determine how the two agencies, working together, could best help Mrs. Y. This was the groundwork for a meeting to focus the Department of Social Service on the client, rather than the process. The conference was held. The worker acknowledged that it was difficult to work under regulations. The worker also recognized the difficulties of attempting to help people in a service which was being attacked by clients and the community. However, the worker asked, "Isn't there some way Mrs. Y's realistic need could be met?" "Well," was the response, "if we bend rule A and reinterpret rule B. . . ." Mrs. Y. received her 16 hours of baby sitting.

Was the social worker manipulative? Well, in a sense she was. She consciously planned how to approach the workers of another agency to focus them on the client and to bend the rules. She used confrontation, the presence of the agency director, and her recognition of the difficulties of working in a bureaucratic structure. The bureaucratic system runs by rule books, but built into the system are the loopholes for getting around it. The larger the rule book, the more loopholes. Thus, the system can be bent. She had to show that she recognized that workers at the Social Services Department were limited by rules. She didn't attack the rules. Rather, she asked how we could get around them. She sympathized with the problems faced by the D.S.S. worker and her supervisor. And honestly respected them as helping people.



**“We frequently fail to help the community agency see the person referred as appropriate for their services. We fail to help them see beyond blindness.”**

**INTEGRATION INTO LOCAL PROGRAMS** Another agency social work rule is enhancing community services so that blind people can be served by them. If we are to integrate blind people into a community agency, then we must be assured that they will receive services truly meaningful to them.

A case in point: our agency had a two-day-a-week group work and recreation program for blind older adults. The kinds of activities in which they participated were typical of those found in most senior citizen centers—arts and crafts, discussion groups, trips, games, program planning. As the staff looked at the program and then at the senior citizen programs in the community, the only differences that could be determined were: a) all of the members were legally blind; b) the program utilized small group activity to a much greater extent; and c) the program staff had professional social work orientation and leadership.

A policy decision was made to merge this program with that of a generic senior citizen program. The center selected for the merger was chosen on the basis of: 1) being the agency with which the group members were most comfortable as demonstrated through visiting and in participation in joint programs *and*, 2) the agency most receptive to the concept of merging a group of blind people into its program.

### **Problems to be Faced and Solved**

Our agency was aware of problems which it would face. The senior citizens program was oriented primarily toward mass programs. Its staff was small and was already pressed in terms of serving their current membership. *And*, there was a difference between the philosophies and approaches to service, though each was dedicated to helping people. The mass structure of the program did not lend itself well to integrating blind people with their sighted peers. The blind people would be lost in the large group. Their ability to form new social relationships would be severely limited. *And*, of course, the move would be difficult for the blind people in any event.

The center staff did not come from the fields of formal recreation or group work, but came to their jobs with their own life experiences. These were people from the community with an interest in the aged person and with skills that were developed primarily as avocations. (Much of the leadership in recreation programs for the aged comes from staff with this background.) Our agency staff, as professional social workers, was concerned with very concrete ideas about how to measure the success of a group program. For instance, the staff frequently evaluated the level of involvement of group members in decision-making; the degree of identification of the group as “our group”; the way in which the group enabled an individual to participate. *And*, this staff made conscious use of itself and the program as the enabling tools.

The criteria for measuring success in the senior citizen program was quite different. It was simply, did people

come? And did they enjoy themselves? This, then, was the third problem area, a difference in philosophy, approach, and I suspect, language.

**ENHANCING THEIR PROGRAM** Therefore, if the agency were to integrate blind people into the senior citizen center, it had an obligation to enhance the program so that it could adequately meet their needs. Our agency offered the part-time use of six staff for the expansion of the center program (As an aside, two of the staff assigned had MSW's, three were students from the Syracuse University School of Social Work, and one was a social work aide with skill in leading craft activities.) However, in this way, our agency established small groups, and at the same time expanded the staff of the center.

The problems of differences in philosophy and training were not as easily resolved. Would the educational level and social work orientation of the agency staff present a threat to the center staff? Our agency and the blind people were being injected into its program, and the potential effect on its program was unknown. Our agency staff, with all of its “training” and “expertise,” had to recognize the real contribution being made by the center staff to its members. In other words, our agency staff had to recognize that, while there was great value in how social workers worked with people, the program and approach utilized in the senior citizen center also had great value.

Our agency has learned a great deal from this experience. It learned a great deal about tools for integrating blind people into community settings. It also learned a great deal about aligning itself with another agency and providing the concrete help needed to enhance the program of that setting. Perhaps most important, the message was once again brought home—social work is not the only method of serving people. Other people, other disciplines, make equally valid contributions to the community. Our problem as social workers is to learn how to communicate, and to learn how to find our appropriate role in a shared effort with others.

**BETTER USE OF AGENCIES** Another agency and social work role is that of working with community agencies, particularly those which apparently resist serving blind people. We use the term “apparently” advisedly, for we suspect that too often we do a poor job of referral and interpretation of needs to community agencies. We frequently fail to help the community agency see the person referred as appropriate for its services. We fail to help them see beyond blindness. We also return to our earlier premise that the kind of image or “mystique of expertise” the agency for the blind projects in its community will determine how peers in generic agencies will view their ability to work with blind people. However, for whatever the reason, there are agencies and professionals in the community who feel that they cannot work with blind people.

A case in point: any blind child in Syracuse who wished to attend camp during the summer had only two alternatives available to him, a day camp for handicapped children and/or an overnight camp for blind children. If a blind child applied to a regular community camp, he was referred back to those two alternatives. “We cannot serve him.” “He might get hurt.” “He’ll hold back the group.” “We would have to have special programs just for him.” “The other kids and their parents might get upset.” “We wouldn’t know how to work with him.” All were typical kinds of reasons given. Our agency felt that the blind child, with no unusual problems, could participate in camp with his sighted peers. This



approach is not unique. It has been demonstrated successfully in other communities. We, therefore, planned an approach to the problem, a strategy.

### Project to Integrate Day Camps

We selected one day camp which would, with our support and as a demonstration, accept blind children to be integrated with their sighted peers. Our agency would supply the camp with whatever it would need to ensure a successful demonstration. We did set limits, stating that the presence of the blind children should not radically affect staffing, program, or facilities. (If our agency had to change any of these areas, then it would negate its premise that normal blind children could be served by generic camps.) In order not to place a financial burden on the camp, our agency offered to supply scholarship funds when needed by the blind children. We worked out many of the transportation problems of getting the blind children to the camp-bus-pickup points. We did the intake on the blind children and met with their parents. And, we placed a member of our staff, a professional social worker, on the full-time staff of the camp as a unit head.

The staff member was to function fully as a member of the camp staff, while the agency continued to pay her salary. She was detached from the agency for a period of ten weeks. In a sense, she functioned as a "security blanket" for the camp. While only one of the children in her unit was blind, she was available as a consultant to other staff. She was able to meet with counselors who had blind children in their groups, if there were problems. By the end of the second week of camp, she, as the only professional social worker on the counselor staff, was being used primarily for consultations on sighted children who had problems in the camp.

The demonstration was successful and the success was well publicized. The following summer, seven day and overnight camps in our community accepted blind campers. We continue to supply scholarship funds, do initial screening, and handle transportation problems. Now, however, the staff supplies consultation wherever a blind child is in camp and the staff is readily available if any problems arise. The initial investment was large, in order to break down the walls. Once the barriers fell, our agency withdrew to its role of providing the referrals and consultants.

### Legitimate Agency Services

There are other services that the agency for the blind may need to provide. These could include mobility and orientation; rehabilitation teaching; provision of aids and appliances; community education focussed on society's misconceptions about blindness; maintaining an informational resources for blind people, their families, and the community; and providing leadership in the prevention of blindness. But even these programs could be part of the services of a total rehabilitation setting, serving all handicapped people.

We have almost come full circle. The fields of social work and services for the blind grew out of societal needs and dissatisfaction. We developed these fields of service to the point where needs were being met. And we have become, instead of the innovators, the traditionalists. Now, once again, we are being pushed to meet new needs, new discontent, new concepts. And so that which is now traditional must be examined and that which is useless discarded.

**A NEW ATTITUDE IS NEEDED** New ways of meeting needs, new methods of delivering services, need to be developed. We can continue to adopt the attitude of Linus from the "Peanuts" comic strip. Dragging his blanket behind him, he said, "No problem is so big or so complicated that it can't be run away from." But, perhaps it is time that we in social work and the field of blindness stop dragging our blankets behind us.

Or, to quote an author unknown to me, "We have not succeeded in answering all our problems. Indeed, we sometimes feel we have not completely answered any of them. The answers we have found only serve to raise a whole set of new questions. In some ways we are as confused as ever, but we believe we are confused on a much higher level and about more important things."

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## Public Services—continued from page 18

The study concludes, "It would appear the first step toward stability is a meeting of the key interest groups chaired by a strong leader impartial to any of the vested interests. At this point of time this field has so many external enemies that it needs to make peace among its internal enemies. If it does not, in the words of Pogo, 'We have met the enemy and they are us!'"

### Editor's Note

The original study budget did not include funding for the formal publication of the results. Due to the heavy demand for copies, however, Management Services Associates has published it and will furnish it free of charge to all participating agencies. To recoup its costs and make copies available

to other interested persons, the charge will be \$10.00 for both volumes, if ordered together; \$6.00 for each volume, if ordered separately.

Volume I is entitled, "An Evaluation of the Organization of State Programs To Service the Blind . . . and a Suggested Evaluation Sequence"; it is 58 pages, plus appendices. Volume II, "The Legal Analysis . . . A compilation of the major parts of the laws relating to the Organization of State Programs to Serve the Blind (covering 50 states, two territories, and the District of Columbia)," is 196 pages, plus appendices. Management Services Associates, Inc. (P.O. Box 3750, Austin, Texas 78764), will bill organizations, but individuals must send a check with their order. The studies are printed on quality paper with heavy-duty, self-back covers in "perfect binding."

# The Advocacy Role of The Social Worker in Blind Services

**SAM NEGRIN, M.S.W.**

*Mr. Negrin is the director of the Community Services Division, Program Planning Department, American Foundation for the Blind, New York City. This article is based on a paper delivered at the biennial meeting of the American Association of Workers for the Blind, Atlanta, July 20-23, 1975.*

**Abstract:** *The author contends that in these changing times there is a need for social workers to examine old ideals and practices with a view to altering them. He discusses the advocacy role of the social worker in blind services, suggesting that he become politicized in that he must look at the problems of the system and the dynamics that perpetuate them and develop a strategy for problem solving. The social worker must assume an advocacy role on behalf of the client and even the agency to improve the quality of services and service systems.*

■ In simpler times perhaps, it was enough that we social workers who were working within the field of services for the blind met traditional needs using traditional methods, and in the process casually reinforced the comfortable assumptions that guided our lives, but I don't need to tell you that times have changed radically and, rather than preserve the illusion of unity in defending the past, we must candidly examine the widest diversity of thinking. Not simply new, unfamiliar concepts . . . but we must scrutinize our old ideals and practices because change is the name of the game.

Of course, as Dr. Nathan Cohen (1964) pointed out, "The problem of change is not new, for the processes of change are part of our social system. The uniqueness of today's situation is not change, but the velocity of change. We are no longer being permitted the luxury of crisis planning or sociocultural drift. Change within this scientific revolution has been geometric rather than arithmetic and demands direct planning."

Rino Patti (1974) has said, "Curiously, amid all this clamor for change, surprisingly little organized expression has been heard from direct service practitioners who must daily confront the discontent of those who receive the agency's services." He goes on to say, "There is evidence that practitioners are dissatisfied with organizational policies and practices that serve as the context for their work." But, he asks, "Why has this concern been given so little formal expression? Why have professionals not been more visible in the struggle to change those agency conditions which are harmful to clients or limit the effectiveness of the services given?"

The radical changes resulting from the current regressive political climate and economic crises are going to affect dramatically all human services professionals, many of whom are increasingly being regarded as expendable as the shrinking tax and philanthropic dollars create greater pressures in both the public and private sectors.

## Good Intentions

However, recognition and concern will not, in and of themselves, bring solutions to the kinds of organizational problems all of us will be confronting in the years ahead. In fact, they may create new and more complex problems to further complicate those that already exist. William James once said, "A great many people think they are thinking, when they are merely rearranging their prejudices." You and I know that where dedication and energy exist in groups, and certainly they abound in our own field of services to blind persons, there can always be found the negative consequences of good intentions and the inertia of non-productive activity.

And so I would hope that *my* good intentions in addressing you on the subject of the advocacy role of the social worker in blind services does not stimulate a defensive posture that closes out the possibility of looking at new ideas with an open mind. For many of you, what I shall be suggesting is not a new idea but one you may have supported, or incorporated into your own practice, or even opposed and rejected. However, in recent years there seems to be a growing consensus that social workers should—must—expand their roles and responsibilities beyond the traditional clinical or therapeutic model. The roles I am proposing we emphasize and embrace are those of systems-change agents, community agency linkages, and advocates. The question then perhaps becomes how to utilize our unique social work knowledge, skills, and training so as to



expand our roles and develop mechanisms that will improve the quality of services we deliver as well as improve the system within which we function. Obviously, this cannot be done if we tend to identify with the system that employs us so much that we block out those weaknesses to the extent that we cannot be effective in assuming an advocacy role on behalf of that general community to whom we are professionally committed—blind persons (and their families). And this brings me to the matter of *professional identification*.

I fully realize that those of us who have chosen to be identified as professional social workers have taken on a commitment, as professionals, to do all we can to meet the needs of our client groups, even when this means that our assumption of an advocacy role projects us into the posture of a change agent, with the target for change, the system that employs us.

**THE BLINDNESS SYSTEM** I want to make clear here that I use the term “system” in both the broad and narrow sense. In one respect the blindness system is incorporated into and becomes a part of the broader social welfare system. In the narrower sense, I refer to those systems that are the agencies in which we are employed. Virginia Franks, at the University of Wisconsin, stated the problem rather succinctly when she said, “If a worker’s primary identification is with his profession, rather than with the particular agency or system, he should be prepared to effect changes in his agency which enhance his practice. Once a worker accepts this change role, his agency then becomes the change agent system, and when his change agent system, who incidentally happens to be his employer, becomes the target for change, the worker must then understand how his relationship to the system will affect his change efforts.”

This problem becomes compounded when we recognize that most of us are functioning in a host setting, a setting that tends to view social work with something less than full understanding and recognition of our potential contribution. And, I am afraid, that the roles I am asking you to take on won’t do much to enhance our popularity because what I am calling upon social workers to do is to undertake what is sometimes called a “social action role.” Rather than use the term “social action,” which really doesn’t fully define the professional role of advocacy, I prefer to call this effort “professional action,” so that we may keep it within the context and expertise of our profession while insuring that it adheres to professional values and a code of ethics binding us together. It is a professional responsibility that places us in violation of our professional code when we either choose to ignore it or relegate it to a minor or insignificant part of our professional tasks and responsibilities. It is professional action because it is a prescribed task to which a professional has an obligation and a commitment. It is also professional action because it does not rely upon a voluntary surplus of benefaction, or on any margin of generosity transcending that which is given out of a sense of duty or upon human compassion or political ideology. Rather, it is an integral and essential component of professional *practice*, cutting across whatever particular methodology or field of practice to which one might be committed.

In this society as in any other, the quest for justice, for equality of opportunity, for human dignity, is an endless and often frustrating journey, and as I look at what is happening to our so-called “blindness system” and the human services systems, I am sadly reminded of the opening line of *A Tale of Two Cities*: “It was the best of times, it was the worst of

times.” Indeed, these are the worst of times. We all seem caught up in their violence, imprisoned by our fears, and immobilized by the frequent conflict and confrontation that plagues an already over-polarized society struggling to establish new power bases with an endless variety of agendas.

**TIME FOR ACTION** And yet, these may be the best of times in that out of all this repression, turmoil, conflict, and tension can come the opportunity to build and improve upon those forces which have the potential for improving the human condition, and particularly the condition of those blind and visually impaired persons to whom we have a particular commitment. These may yet be the best of times to fulfill our historic mission. But the time for action is right now. You know this, by your very existence. You know it because you can’t escape from the new problems you face every day in your practice. New community and consumer attitudes towards the human service system and all other systems which are viewed as part of the establishment have brought us a new set of problems that impinge upon our ability to function without stress. You know, because you now have to deal with a community and organized client groups that view the services we provide as a right and not as a privilege in the belief that any individual should have the right to go as far as his innate capabilities will allow. And they want a voice in determining not only what these community services should be, but how they are going to be delivered and by whom.

Right now, we are all an integral part of a system that has come under serious consumer attack in recent years, and attack from some professionals as well. We are not only a part of that system, but we are locked into it in such a manner that there is serious question in the minds of many as to our ability and commitment to change or improve it.

I am sure that most of you are familiar with a number of the charges that have been leveled against all professionals in this particular field, but I won’t go into the details other than to point up some that have caused me particular distress. Bob Scott (1969) felt that, “Too often the client within our system becomes a victim of agency power and is, as a result, converted, not infrequently, into an object to be used or abused by the agency.” Also, Simon Olshansky (1975), in a recent article in *Rehabilitation Literature*, declared that “If counselors were more responsible, and if more of them really wanted to function as professionals, they would clamor for changes, so the clients would not often become the victim rather than the beneficiary of the agency’s services.”

I am certain these and other critics would agree that no system is flawless. As Olshansky said, “The challenge is to develop a system that provides the best fit for the largest number of its population and is protective of the dignity of its clients. Every system has inescapable limitations. The challenge is not to develop the perfect system, but to develop one that combines the possible, desirable, and practical and that permits both staff and clients opportunities for growth.”

**ADVOCACY ROLE** It is our responsibility to assume an advocacy role as professionals on behalf of the children, parents, adults, and elderly blind and visually impaired persons, and even the agencies which we serve. I include the agencies in which we work because I don’t see the advocacy role as being necessarily an adversary one. Actually, if we do an effective job on behalf of our clients, we will



**“It is our responsibility to assume an advocacy role as professionals on behalf of the children, parents, adults, and elderly blind and visually impaired persons, and even the agencies which we serve.”**

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inevitably be improving the delivery system, in this case consisting of the agencies that employ us. After all, isn't it our responsibility to remedy abuse of clients and flaws in the system?

I would like to make it clear that this advocacy role, this professional action, this agency-community linkage role, does not place us outside the system in each instance. Rather, I see us as affecting change for the most part from within the system. Of course, there may very well be occasions when change cannot be effected without confrontation from outside and, at those times, we shall each have to come face to face with our own moment of truth, and in our own good conscience make decisions as to what actions we will or will not take.

### **Professional Guidelines**

However, those decisions must be based upon professional guidelines, some of which are clearly spelled out by our social work colleagues in the report of the National Association of Social Workers, “The social worker as advocate, champion of social victims,” which asks the question, “Why should it be difficult for a profession that is based on humanitarian democratic ideals and dedicated to service for the welfare of mankind to act on behalf of those whose human rights are in jeopardy?” Each member of that professional association, in subscribing to the code of ethics declares, “I regard as my primary obligation the welfare of the individual or groups served, which includes action to improve social conditions.” The obligation to the client takes primacy over the obligation to the employer, when and if the two interests compete with one another.

Now, I suggest to you that this is not an easy decision to make, nor can the advocacy role be assumed without some degree of sophistication, confidence, risk, knowledge of service delivery system, and institutional change strategies. Unfortunately, many of us are sorely lacking in these skills. Nor are we prepared to reach out and utilize the influence and power systems in the community.

There are many reasons for these shortcomings. For one thing, our professional education and practice has tended to legitimate a consensus orientation and to oppose an adversary one. Also, the human services professions, particularly this field of practice (that is, the blindness system) has tended to attract its share of persons with all kinds of hangups about rocking the boat. In addition, besides lacking the orientation and technical skills necessary to engage in effective advocacy, our employee status—and this goes for the executives among us, who are accountable to communities and boards of directors and therefore in a sense, employees—our insecurity and reluctance to risk our jobs has restricted our abilities to act as advocates.

But, I contend that community action, professional action, effective change, community problem solving and building bridges between the agency, the consumer, and the community for improving the quality and delivery of services is a legitimate and vital function for those of us who regard ourselves as professionals in the field of human services. I suggest that we have generally failed to develop a comprehensive diagnostic model of our agencies, both public and private, as the objects to be helped. This could be done creatively in the same way that some social workers have come to see community organizations or social agencies as clients needing change and have developed models for changing them.

**DEVELOPING MODELS** Who better than you can provide the input necessary for development of that diagnostic model? Who is better equipped to examine your agency and this entire system as loving critics, aware of its problems and its potentials? Who is in a better position to enrich the professional stance, to add a strategy of working out realistic models for a humane method of delivering services, and to work to give these models currency in public consideration about policy? I contend that you are the ones to take on professional responsibility for reforming the system, for working out models of our agencies, not as therapeutic centers, but as humane institutions devoted to delivering the highest quality of services.

Right now, in this country, we and our respective professional disciplines are being subjected to the most serious threats ever to face us in our history. The services we provide are being indiscriminately slashed from federal and state budgets without any regard to the consequences. The health and social welfare field is being offered up to the silent majority on a silver platter to divert their attention from the massive give-aways and the national scandals.

Now, some of you might ask what all this has to do with us as workers for the blind. And this is what really matters to me because these *are* the concerns of each of us as professionals, and I am troubled that so many of us may have become so parochial, so wrapped up in our own little worlds of work that we can't make the connection between what is happening to people on the other side of our agency doors and its effect on our ability to deliver the services that we say we are equipped to provide. I'm disturbed that we have been forced to place a disproportionate emphasis upon protecting our jobs and on survival so that we do not see those things in society which produce the problems we contend with in these jobs. I'm depressed by the realization that we have in our society adjusted to the horror of our times and *that* is the real horror of our times.

### **Group Support**

Of course, I am fully aware that there are some very obvious concerns we all share in terms of the risks involved in undertaking this change agent role. Some of these include: fear of dismissal, loss of opportunities for upward mobility, the absence of a legitimate base in the agency other than that provided by the (NASW) code of ethics, lack of board support, and fear of loss of funding. And because these are real fears it is all the more important that we develop the kind of support we will need from our peers and colleagues. Such group support from professionals who share our concerns and may be looking to us for leadership will certainly help to mitigate individual vulnerability. If we



are going to solve some of the problems that perpetuate suffering or deny adequate services to masses of people, we social workers must assume a more aggressive posture in the education of our boards, our communities, our agency administrators, and other agency staff members. If we are to work in an environment that is conducive to improving the well-being of our clients then we must take on the task of changing the system through social and political action. Dean Albert Fuller of Graceland College, Iowa, writing about the public welfare system for the *APWA Journal* in an article entitled "From Caseworker to Change Agent," remarkably identified some of the welfare system problems which challenge us in our specialized field. He pointed out such dehumanizing features as "delays in receiving assistance; an awesome power gap between consumer and caseworker and forces within the system that provide temptations to misuse the power to withhold or compel; an established policy of dealing with consumers in isolation from representatives of their organizations or from legal counsel, thus increasing their sense of helplessness and alienation; the passive, helpless, insecure, child-like role assigned to the consumer by the (welfare) agency which intensifies his despair and alienation; and the dubious practice of relying primarily on inadequately trained 'caseworkers' to serve a population of many whose problems are related to a very deprived physical and social environment and a stunted opportunity structure."

**SPEAKING OUT** You can help to turn things around if you really want to. For one thing, you can go back to your agency, to your community, and document for your administrators, board of directors, and legislative representatives the impact that budget cuts have on the people we are serving. You can document what happens to our clientele when necessary health and social services are denied to them. You can document the impact of regressive agency policies. You can join in coalitions with other professionals and consumers to restore cuts in training funds and to help our agencies become more suitable settings for professional practice. We can speak out in favor of agency standards that will insure, through the accreditation process, that no agency falls below a uniform floor of standards for services and for qualified, trained personnel to deliver those services.

But, if we are going to become effective change agents, if we are going to do anything about helping to resolve the problems facing blind and visually impaired persons in the United States, we are going to have to be willing to become politicized in the sense that we must see the problems and the dynamics that perpetuate these problems, and then develop a strategy for dealing with the dynamics of power and decision-making in our own communities and agencies—a strategy for problem-solving.

**AWARE OF LEGISLATION** On the broader level, we are going to have to educate ourselves as to the existing legislation effecting our daily practice and identify those flaws that deny our clients the services they desperately need. For

example, how aware are we that Title XX circumscribes the federal role and gives wide latitude to states for definition, selection, and development of social services responsive to the needs of their own residents? Certainly, social workers should have a great deal to say as to what services should be provided, to whom, and under whose auspices. We need to educate the community as to what social services are, what they are intended to accomplish, and how they may be utilized. How aware are we of the flaws in SSI as they affect children? We need desperately to assure passage of legislation which will guarantee early entry of children into a comprehensive health and social system in time to prevent reversible disabilities from becoming irreversible handicaps.

And closer to home, we must begin to speak out about those issues which confront us. We will need to put an end to the interminable frictions and competition between agencies in which blind persons are placed in the center of agency struggles for turf or territorial primacy—struggles that sometimes leave clients unserved rather than referred to a "competitor" agency. We need to organize local efforts to assume a more equitable allocation of revenue sharing funds. We need to lend our expertise to agency and board understanding of consumer involvement and consumers' right to self determination.

**THERE IS HOPE** In closing, I do want to say that though the current picture is grim, there is hope, particularly if we exert our influence as professionals and as citizens on our elected representatives.

Bertrand Russell defined an optimist as one who believes that the universe exists to please us. I, as a social worker, tend to be an optimist, but with the reservation that man may need just a little bit of help to make the optimist's belief real. I hope I haven't displeased too many of you, and I'd like to enlist the aid of other optimists, though the support of pessimists will not be turned away. But, for all of you optimists and pessimists alike, I offer a few words of caution from the ethics of the fathers and it goes like this: "The time is short, the hour is late, the matter is urgent. It is not incumbent upon us to complete the task, but neither are we free to desist from doing all that we can."

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# Principles of Statewide Planning

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**Abstract:** *An effective strategy for improving the delivery of human services must involve a carefully developed "action sequence." The topics presented here include: 1) prerequisite data collage, 2) planning variables, 3) strategy variables, 4) selecting the tools, 5) causing change through the "action sequence," 6) tracking Texas H.B. 1673, and 7) a summary.*

■ The real topic in any discussion of state plans for delivery of services is the matter of causing effective, lasting, positive change. If we accept the premise that positive change is needed, then we must have the feeling that some sort of problem exists which precludes the present delivery of services from meeting the perceived needs of those to be served. If this is the case, we need two primary thrusts in order to cause effective, positive change. The first thrust must lead to a thorough and comprehensive isolation of the problem(s) through the process of an accurate needs assessment. The second thrust is a complete, detailed, systematic blueprint for action which will lead to the solution of the previously identified problem(s). An essential related matter involves securing the authority and leverage or power to implement the blueprint.

This discussion, then, will address the topic of causing positive change by systematically examining the prerequisite data required, the needs assessment process, and the planning and strategy tools and variables. From the framework of the general background provided by this examination we'll move to a listing of a specific, step-by-step "action sequence" designed to maximize the success potential for "causing positive change." The action sequence will be illustrated with a brief discussion of Texas House Bill 1673 and a concise summary of the major points covered. My discussion blueprint calls for an interfaced sequence of seven major topics: 1) the prerequisite data collage, 2) planning variables, 3) strategy variables, 4) selecting the tools, 5) causing change through the action sequence, 6) tracking Texas H.B. 1673, and 7) the summary. It is hoped that this approach will identify the major benchmarks in the conceptualization and development process leading to an effective state plan for the delivery of services, as well as several alternative choices at each point.

**DATA** While this section is not designed to be comprehensive, it is intended to point up a number of essential data areas and factors which are very important prerequisites to an effective statewide planning process relating to the handicapped.

"Law and the handicapped" is an essential area of background information upon which to begin conceptualization of any service delivery system related to meeting the needs of the handicapped. Existing human services rehabilitation, vocational education, special education, and general education statutes should be reviewed and analyzed in order to understand the existing legal environment. This process should include present federal and state laws and developing federal and state trends. In recent months there has been considerable activity across the nation in terms of court actions, proposed constitutional revisions, and litigations regarding the rights of the handicapped. These actions have centered around basic human rights to least restrictive alternative services, humane treatment, free and unrestricted access to buildings, access and use of public transportation, equal educational opportunity, and appropriate educational and compensatory services. It is becoming increasingly clear, from a legalistic viewpoint, that adequate and appropriate services and educational programs for the physically handicapped as well as the mentally handicapped are a must. The principle of the right of the hard-core handicapped to equal educational opportunity is well established. Federal trends are in the direction of priority of service based on the severity of the handicapping condition(s), with the more severely handicapped receiving the higher priority.



## NEEDS

A thorough needs assessment provides the **ASSESSMENT** only truly defensible rationale for effective planning. This is particularly true regarding statewide planning for delivery of services. Without this essential step in the planning process, agencies find their energies greatly dissipated through "fire fighting" activities. On the other hand, if service delivery planning and implementation is based on the information gained through an adequate needs assessment, it is possible to develop the more efficient "pro-active approach" to problem-solving rather than the resource dissipating "reactive approach." The needs assessment, then, is an important tool which can be utilized for purposes of accurate problem identification. Once the problems and needs are clearly identified, they should be prioritized so as to make the systematic and orderly development of the solutions possible. By this technique, frustrations are minimized while existing conceptualization resources are maximized.

### Timely Data is Essential

In order to accomplish the type of quality needs assessment alluded to previously, it is imperative that a sufficient amount of timely data be secured and correctly analyzed. This data is the raw material from which the needs assessment is constructed. The resultant needs assessment leads to the development of the plan which ultimately leads to the actual delivery of services. Therefore, the quality and quantity of data gathered are extremely important to the resultant product. In order to gather adequate data it is essential that appropriate data sources are identified and that effective steps are taken to insure their accessibility. It is normally not practical to secure all pertinent information from all data sources. Therefore, it is crucial to organize the information gathering and sifting process in such a manner that both sufficient scope and depth are included in the sampling process. Potential sources of input include the consumer sector, the professional sector, and the general public. Subgroups may include students, parents, clients, private agency personnel, university personnel, local agency personnel, state agency personnel, administrators, legislators, board members, the judiciary, teachers, rehabilitation counselors, welfare workers, etc.

The selection of the specific target groups needs to be based on the general nature of the type of need to be addressed. This narrowing and refinement is necessary if the scope of activity is to be manageable. The trick is striking the proper balance. The situation must be broad enough to make comprehensive planning possible and yet restricted enough to make implementation practical. In other words, "don't bite off more than you can chew," but bite off a piece that can later be reintegrated into the total picture. Also, be sure that input comes from several sectors to avoid data bias. If all of the input comes from the professional sector, or if a disproportionate amount comes from a particular segment of this sector, only one perspective is available. The same applies to any other input source. Many viewpoints and perspectives must be ground into the same lens if we are to clearly focus on the true situation under examination. Once the information sources are identified and refined, and access to them is secured, the next step is the development of a thorough and systematic method of gathering the data. This can be accomplished in various ways. Included as possible methods and sources of gathering the needed information are: public testimony; questionnaires; requests through the news media; interviews; reviews of existing

reports, papers, and regulations; reviews of professional literature; professional consultation; legal consultation; reactions of state and federal agencies; legislative feedback; and reactions of consumers and consumer organizations.

## DATA

When the data gathering process has been **ANALYSIS** completed, an enormous amount of information should be on hand. The difficulty that presents itself is how to deal with all of this data. It is imperative at this point to develop a systematic and unbiased method of organizing and quantifying the information. At the same time, safeguards should be built in to provide subjective quality analysis and control. This must be done in the interests of accuracy and balance, but care must be taken to avoid bias.

As the data is tabulated, reviewed, and massaged, some salient and recurrent themes will begin to emerge. These should be noted since many of them will become the major problem thrusts. As these become more evident, the major categories to be examined are set forth and the quantity of evidence supporting each problem thrust can be tabulated and sub-categorized. This information will eventually provide the hard evidence to support whatever decisions and recommendations are made in the actual plan developed by the decision-makers. Therefore, great care must be taken to insure accuracy, integrity, defensible subjectivity, and sound analysis of the findings. If this is done, the total process will be greatly enhanced in terms of the imperatives of credibility and face validity.

If for any reason at any time during the entire process, the credibility and face validity of the findings are weakened or lost, the whole operation will degenerate into an ineffective academic exercise. In other words the needs assessment process and the resultant plan must at *all* times be both accurate *and* believable. Just as important as the integrity of the work done is the packaging for consumption by the decision maker, the implementor, and the consumer.

## PLANNING VARIABLES

At this point we assume that the needs assessment has been accomplished and that we know what the problems are. We must also assess what resources are presently available and with what degree of efficiency they are being employed. We must involve as many of the key actors as possible in the preliminary planning process. The objective is the determination of *what should be* in order to meet the needs of *all* to be served. The idea is to compare this "what should be" to "what is" in order to identify the service gaps. Concurrent with this process is some highly creative "divergent thinking" or "brainstorming" to determine whether more efficient utilization of present efforts and resources might reduce the gaps.

We might think of this whole process as the construction of a picture puzzle. The completed puzzle is the ultimate in services to the handicapped. We put as many pieces of the puzzle in place as possible at the onset and determine exactly who is responsible for each. If we see overlap and redundancy, we plan to utilize these excess resources to install more pieces of the puzzle. When this has been thoroughly conceptualized, we will possibly find that some parts are still missing. If so, a concerted effort must be mounted to determine ways of providing these missing components. What is needed to accomplish this will vary with the particular situation. Some of the possibilities include: more effective monitoring, greater public awareness, consumer and legislative activism, new legislation, agency initiative, management efficiency, staff development, re-



## “To develop a coherent plan of statewide delivery of services means an attempt to cause effective, lasting, positive change.”

vision of regulations, policy decisions, and improved communication.

As the key planners move through the entire planning process, they must: systematize the process, accurately analyze the needs assessment, foresee and neutralize potential opposition, identify and coordinate the efforts of their supporters, correctly analyze all changing planning variables, maintain high credibility, and practice the art of precise timing. Throughout all of this, their inputs to key decision makers (their power base) must be succinct, concise, accurate, and appropriate to the immediate situation. Besides all of this, their inputs must be available at a moment's notice. The key planners, then, must be capable, knowledgeable, credible, conscientious, and extremely dedicated to the task. This type of endeavor involves a tremendous output of emotional energy as well as a willingness to face a constant element of risk.

**STRATEGY** This section is extremely complex and requires considerable experience and sensitivity to the ever-changing situation involved in devising and implementing the “master plan.” An indepth examination of this topic would be much too lengthy to include here. Suffice it to say that careful consideration must be given to: your resources, the resources of the opposition, communication strategies, public information status, the formal power base, informal power bases, political currents, the state of the economy, public sentiment, national and professional trends, and the changing pulse of the news media.

As we have seen, the process of effective planning to cause positive change is a complex matter. It is important to identify and select the proper tools to accomplish the job. One important consideration is the people to be involved in the process. They must, at least collectively, embody the qualities and characteristics discussed earlier. Some of the types of individuals who may be involved include: administrators, consultants, attorneys, legislators, consumers, board members, and interested members of the general public and/or other professions. The selection of the key planning team is crucial and hinges on the quality, availability, and willingness of potential members identified.

Once the key team is assembled, it is just as important to identify and secure the cooperation of a broad and powerful base of supportive individuals in many segments of the state. Then, as dictated by time and circumstance, certain key individuals must assume the various postures which may be quickly described as: the conservative stance, the neutral stance, the aggressive approach, the advocacy role, and the hero posture. Involved in this highly volatile process are the dangerous and often difficult to follow interactions which center around such nebulous variables as: personal reward, ego involvement, political indebtedness, professional leverage, various types of pressures, varying degrees of integrity of the actors, and the ever present potential for confusion and misunderstanding.

Some of the more tangible tools to be forged and selected can be considered as useful through the *amicus curiae* or “friend of the court” approach. These professional tools provide the information and alternate strategies for use by the key actors who will emerge throughout the process. Important consideration must be given to the development and effective use of sophisticated professional input, planning models, team approaches, individual activities, input channels, interaction cycles, legal advice, strategies, and alternate strategies.

**“THE ACTION SEQUENCE”** The action sequence is much easier to develop in retrospect than in advance or during the process. It should be recognized that this sequence may vary in different locales and situations and that it may be resequenced during the process because of the realities of current changes during the process. The presently perceived action sequence is as follows: 1) A felt need causes a grounds well of concern. 2) This concern attracts the attention of some segment of the upper echelon power structure. 3) The power structure segment decides to investigate. 4) Some type of formal study and review body is established. 5) Professional advisors are identified and secured. 6) The data is gathered. 7) The data is analyzed. 8) The problem is isolated. 9) A plan is devised to solve the problem. 10) The broad power structure is apprised of the need and the recommended solution. 11) Appropriate mandates and authority are established. 12) An accountability mechanism is devised and activated. 13) Appropriate agencies activate the plan. 14) Implementation begins. 15) Constant work and dedication by key planners and implementors endeavors to cause the implementation activities to achieve the original intent.

### Texas H.B. 1673

Texas House Bill 1673, enacted by the 64th Legislature, is known as “The 1975 Act for the Blind.” It has been hailed by numerous responsible individuals as “the most promising and comprehensive piece of human services legislation to ever become law in Texas.” A quick overview of this legislation and the rationale on which it is based is found in the following excerpt from the statement of intent which was sent to the chairman of the Texas House Committee on Social Services by the bill's sponsor.

*“Study Committee Findings.* Through the process of studying the needs of the blind and visually handicapped of Texas, the House Interim Committee on the Study of Educational Programs for the Deaf and Visually Handicapped has determined the situation to be as follows:

- a) the public policy of Texas (statutorily declared) is to provide the blind the necessary services to achieve self-sufficiency and fulfillment,
- b) in a rapidly growing body of law, the courts are repeatedly articulating the rights of the severely handicapped to *adequate educational* opportunities and the *other special compensatory* services required,
- c) the agencies responsible for educational and related services to the blind have been primarily concerned with larger and more compelling needs than those of the blind,
- d) special compensatory educational services for the blind are for the most part lacking,
- e) many individuals are receiving poor quality services or no services,



- f) diagnostic services are few and fragmented,
- g) the preponderance of school age blind are community based and are receiving inadequate services or no services,
- h) there is an absence of vocational and career education programs for the blind,
- i) coordination of programs for the blind is very inadequate.

*"Inadequacies and Danger Signals.* The Interim Committee report clearly indicates:

- a) the *declared policy of this state* regarding the blind and visually handicapped is *not being given full effect* in an adequate manner,
- b) educational programs for the severely handicapped in Texas are presently probably *not so constituted as to withstand judicial attack*,
- c) both the *quantity and quality* of programs for the blind and visually handicapped *should be immediately and greatly improved*.

*"Prerequisites to Program Improvement.* The committee concludes that four main prerequisites are essential to successful implementation of the needed improvements:

- 1) early identification,
- 2) adequate diagnosis, evaluation, and specific individual written service plans,
- 3) more effective coordination of presently authorized programs, and
- 4) the reallocation of special education resources commensurate with the severity of the catastrophic handicap of blindness.

*"Meeting the Needs.* H.B. 1673 addresses the needs and problems identified through the Interim Study Committee Report by:

- 1) redefining special education priorities;
- 2) emphasizing local school district responsibility,
- 3) providing the mechanisms for implementing needed service improvements through the Texas Education Agency, the Commission for the Blind, the Department of Mental Health and Mental Retardation, the Texas School for the Blind, etc.,
- 4) by providing a coordinating, planning, ombudsman, accountability mechanism,
- 5) by addressing the vocational, career education, and employment needs,
- 6) by establishing a statewide system of identification, evaluation, and service planning, on an individual basis,
- 7) by establishing a method of centralized coordination of media, materials, and devices, and
- 8) by encouraging continuing self study and improvement of programs through the use of consumer/professional recommendations.

*"Anticipated Results.* The impact of the recommendations encompassed by H.B. 1673 will be tremendous and highly positive. For example, it is anticipated that *services to school age blind children will be increased by at least 80%* in areas sorely needed by the individuals.

*"Costs.* By the *redirection and more efficient* use of existing state resources, and the more aggressive use of federal resources, these programs can be greatly expanded and improved with only a *minimal expenditure of new state dollars.*"

If one thinks through the "action sequence" discussed earlier, it is fairly clear that the ultimate passage of H.B. 1673 is the result of just such a series of happenings.

As discussed earlier, the causing of effective change through statewide planning for delivery of services is an extremely complex issue. Although numerous aspects of the process have been discussed here, it is important to realize that considerable amplification of each plate is necessary to a full-blown project of this magnitude. With this preface I will attempt to outline the major points we have considered in this presentation. To quickly summarize:

To develop a coherent plan of statewide delivery of services means an attempt to cause effective, lasting, positive change.

The reason for launching a strategy for effecting change is based on the feeling that things are not presently as they should be.

Key decision-makers must see the need for analyzing and solving the problem if any lasting results are to be even a possibility.

A comprehensive review of the situation, including adequate data, is essential to the development of a credible needs assessment.

The needs assessment must clearly and concisely identify the problem.

An effective strategy for solving the problem must be developed by the professionals and accepted by the decision-makers.

The appropriate authority and mandate must be granted by the decision-makers.

Continuous and conscientious involvement of the planners and implementors is imperative if intent is to be translated into action.

After attempting to reduce the process of statewide planning for delivery of services to writing, I am even more aware that this is an extremely sophisticated and complex process. It is not really possible to reduce it to a concise formula in abbreviated form. It is hoped that this quick overview gives some insight regarding the process. The only advice I can give to those individuals truly interested in this concept is that they actively engage themselves in the process and let the chips fall where they may.



# Comment

*A special forum for individuals to respond in detail to material published in the New Outlook for the Blind or elsewhere, to present new ideas, or to raise issues which relate to the specialized field of work with blind and visually handicapped persons. Contributions should be 350-1000 words in length.*

## It's a Hell of a Job!

This is a diatribe against the built-in deterrents to sane planning at the state level of a federal-state-local program of any kind. There is no problem, of course, at the state level (or any other) if you are content to sit on your duff, and maintain things as they are, which in this world means let them deteriorate, and count on annual increments, and retire satisfied. However, if you want to improve a service to the citizens, it's hell.

At the local level it is permissible to take several acceptable postures which will pass: 1) You can claim not to understand any level above your own and get by with it. 2) You can take a cheerfully cynical attitude regarding state or federal programs and funds, showing polite surprise when anything works. 3) You can regard anything which trickles through (and does not force you to think, act, or improve significantly) as manna. 4) You can use the levels above you as a whipping boy for your own lacks. It's not a bad state of affairs.

At the federal level, you can: 1) Claim it is all the fault of Congress. 2) Claim it is all the fault of the Executive Branch. 3) Reorganize your bureau (division, department) which will take the bite off for approximately two years. 4) Point to the fluid situation in staff which means that no one ever really knows anything. This permits appropriate thousands to be spent on orientation. It isn't easy, but with a certain amount of ingenuity you can hold the line for some years without opprobrium.

The state agency is a little nearer to the firing line if anyone wants to take a pot shot and the target is easy to riddle with holes. This is true even when all is working well. I am speaking now of a situation when 1) the staff of the state agency is of a reasonably high calibre, 2) the administration of the state is strongly behind good service to the citizens, 3) the legislature is disposed to come up with both laws and funds which will back these efforts.

Even when all is going well, good planning is all but impossible because of two factors: guidelines and funding.

### Guidelines for Policy

Guidelines is a broad term to cover various rules, regulations, and sets of confusion at both the federal and state level.

A good sample is state personnel policy. There have to be limits, there has to be

order, there has to be control. Therefore you can never hire to get *the job done*. You have to hire to meet the requirements and this is almost never efficient. Parenthetically, you can never fire to get the job done either. This is a built-in deterrent to progress.

As for federal guidelines, these are a quagmire of muddy indecision mixed with tough roots of stringencies based on tradition, some lawyer's interpretation of a federal statute, and a genuine effort to set up some standards which are national. The fact that these are not written in concert with the states, that they are sometimes scrapped, and that they are, without exception, late, makes them a needless strait-jacket which are probably observed by some conscientious states and observed in the breach by others who spend considerable time and effort to get around them.

### Funding

But the chief barrier to reasonable planning is the *funding*. When an honest budget has to be pared at least three times before it gets to the people's representatives, the legislature, the time spent in preparing it is fifty percent a waste, and this is on the state level. And the federal level of appropriation is the Greatest Single Deterrent to accomplishment.

The Congress may be of the opinion that it is saving the national purse by appropriating too late and too little, but the waste created by this method of appropriation is huge, and is measurable, to some degree.

If the state agency is lacklustre and weak, the dilatory and arbitrary method of federal appropriations is a perfect excuse for not producing viable, creative, useful advances in service at the state level. (Federal money is supposed to be seed money, supplementary money, added money. In practice, it is matching money in at least some programs which is one up on *total* federal funding if you want local involvement.)

If the state agency is live, talented, forward moving, the uncertainties and delays and withholding of appropriations at the federal level do much to negate any advances. The sheer man hours spent in adapting to the lateness and to the cuts are repeated in each of the fifty states which have go programs.

In addition, the loss of confidence in the state program, thus hampered; the major impossibility of staffing adequately programs which end up only partially funded; and the impact on planning of such setbacks are incalculable.

Why do we take jobs at the state level and why do we stay? Not for salaries these days, and not, if we are any good, for ease. We stay because we believe that the state still has a real part to play as a level of government which is nearer the local than the federal and yet has some chance of objectivity and an overall view. The layer cake may be passé, but here and there as the marble cake swirls, the state has a part. If the built-in obstructions can be removed or cut down, it can be a dynamic, efficient part.

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## Therapeutic Counseling in a Rehabilitation Agency

Paul J. Schulz

What evidence is there that counseling is effective? This is a question that may be asked by administrators of agencies for the blind when evaluating ongoing counseling programs and planning new ones. The question may also be asked, or at least implied, in the comments of clients who are referred for counseling.

The question is perfectly legitimate. It should be asked not only of counseling but of every service offered by an agency for the blind. Administrators should evaluate each service offered by the agency not simply because they have a responsibility to spend money carefully, but because the client is entitled to services that are both meaningful and helpful.

All too often counseling is loosely defined, if at all. The person who helps a client select and enroll in classes might be classified as a counselor; the staff member who puts a client in contact with a potential employer would be called a vocational counselor. Other persons who are sometimes called counselors are simply advice givers or listeners.

For the present discussion, however, we shall limit our definition to what can be called therapeutic counseling. It might be called psychotherapy, intensive counseling, or simply therapy. Its purpose is to meet the emotional needs of blind or visually impaired clients. It is specialized in function and process, and administered by professionals who are qualified by training and experience.

Such counseling may fit within any one of a number of theoretical frameworks. It may be psychoanalytic in its emphasis. It may use principles of behavior modification, transactional analysis, or be eclectic in approach. The theoretical application, however, will be determined by the particular bent and training of the therapist. Regardless of the approach, the intent or purpose is to improve the emotional health of the agency's clients. In an agency for the blind this usually means helping him or her to adapt emotionally to life with a handicap. The goal is not simply to give advice which the client has neither the means nor the inclination to follow. Rather it is to give the client the benefit of the technical skills and knowledge which are at the disposal of the therapist.

### Emotional Needs of the Client

Anyone who has lost all or a large portion of his sight has experienced a major loss. This loss affects almost every area of his life. He must develop skills to compensate for the loss. He must work out new relationships with family and friends. In order to come to grips with these problems he must expend considerable emotional energy. The person who loses his sight is not simply a physical being who can be programmed to acquire certain skills, but a whole person with physical and emotional needs. He has experienced a physical loss and he has feelings about the loss. He can



acquire skills, but the act of acquiring them often involves a great deal of emotional stress.

These are not new concepts. They have been described to one extent or another by many writers. They do, however, need to be re-emphasized. Any person who experiences a serious loss will react emotionally to that loss. The intensity or pattern of the reaction may differ from one person to another, but in some way each person will feel the loss.

Certainly, many persons have experienced a serious loss and have learned to live with it without professional help. This is true not only for counseling, but also for the acquisition of physical skills. On the other hand, many persons have experienced a serious loss and have not made an appropriate adjustment. They failed because they could not cope with their feelings and could not get help.

The person who loses his sight usually needs emotional support. His family and friends may wish to help, but feel inadequate to meet this need. They think of him as he was and grieve with him. They can share in the feelings, but do not know what else to do. Another family may not allow the newly blinded person to express his feelings. If he cries he is told, "Now, now. We can't have that." Or, "Keep your chin up. I know someone else who's much worse off than you."

### Counseling Intervention

What the newly blinded person really needs is the opportunity to vent his feelings in the accepting climate of the counseling relationship. He needs to be helped to understand why he feels the way he does. He needs to know that the depression he feels is normal. If he is faced with several alternatives he needs help in stating and evaluating them clearly so that he can make the appropriate choice. He can do all of these things best in the privacy of the counseling room with the help of an experienced professional.

All too frequently when a person loses his sight it interferes with other aspects of his life. Because he is depressed or anxious at the thought of moving about in unfamiliar surroundings he might withdraw completely from normal social contacts. Relationships with spouse and friends suffer as a consequence. Quite a number of marriages have disintegrated as a result of this. Without professional help the person may never understand the relationship between his behavior and the loss of friends and family. He feels abandoned and his feelings of devaluation are confirmed.

An elderly woman who is losing her sight wrestles with the problem of giving up her apartment which has been her home for many years. Finally she gives up her furniture and moves into a rest home. She finds her new companions uncongenial and her activities have become regimented. She is completely dissatisfied with her new life style. Her old apartment is no longer available and she has no one to help her find a new one. This problem and others like it are very real. A person loses his sight and as a result experiences further losses. They seem inevitable, but need not be when competent counseling is available.

Other cases demonstrate successful intervention. A 36-year-old woman came in for counseling. For three years prior to her first session she had been gradually losing her sight as the result of diabetic retinopathy. She experienced much anxiety over the possibility of total blindness. By turns she was apathetic and angry, but was never able to communicate these feelings to her husband. As a result he was confused by these mood changes and was spending less and less time at home. The marital situation seemed hopeless to her. During the course of counseling she became aware of how her inability to express her feelings to her husband had affected their relationship. When she told him what she was feeling and why, he proved to be more understanding than she had expected.

A 43-year-old man suffering from glaucoma had lost most of his sight. When he could no longer perform his duties he lost his job and his self-esteem. He became bitter and angry and took a perverse pleasure in his lack of activity. In counseling he resolved these feelings and became aware that his behavior was self-defeating. In time he contacted a counselor at the Department of Vocational Rehabilitation and began training for a new career.

In another case, a 58-year-old woman became depressed and suicidal when she lost most of her sight. She was obsessed with the idea that she was a burden to her family. In counseling she realized that what she really feared was being abandoned by her family. This feeling had been stimulated by what she felt was her totally dependent status. These feelings changed as she began to understand that she could become more independent. Further, the family was involved in counseling and they were able to assure her that they really cared about her and would not abandon her. Her depressed mood gradually lifted and she gave up her suicidal thoughts.

Although some of these cases seem to be concerned only with problems that required a little advice or common sense they are, in fact, not that simple. The problems are based on the individual's feelings and the solution is determined by that person's ability to understand these feelings and their subsequent effect upon his behavior.

### Effectiveness of Counseling

How do we determine if the counseling services offered by an agency actually meet the needs of the client? Is there something in the counseling process or in the client that can demonstrate success or failure? Some way of "proving" the effectiveness of counseling? Unfortunately, it is never that clear-cut.

One way to find out is to question the client concerning his or her reaction to counseling and the therapist. But then there is the problem of how much they are influenced by the interviewer and his questioning methods. Further, there is the matter of confidentiality. The client is expected to comment on what is essentially a counselor-client relationship. How can he or she comment to a third and possibly unknown person without revealing things discussed in the privacy of the counseling room. Most importantly, since what is ex-

pected is really a self-evaluation by the client concerning his own progress, can he be expected to be totally objective?

The client may make comments concerning his counseling to a teacher or other staff member, but these reports are at best haphazard and transient. They may stem only from the feeling of the moment. "Today I am terribly depressed and nothing can help me. Not even counseling." Or, conversely, "I felt good today. Not because counseling helped, but because I had a good mobility lesson." On the other hand the client might say, "Counseling is helping me work out the anxiety I feel about traveling." It should be evident then, that comments to other staff members may give an indication of counseling effectiveness but, are not necessarily reliable.

### Behavior Changes

Changes in behavior of the client may be an easier and more reliable way of evaluating effectiveness. For instance, a client is willing to come to the agency only for counseling, but after several sessions he enrolls in some basic training courses. A woman feels self-conscious about carrying a cane, but after counseling is not only willing to carry one but also signs up for mobility training. These examples, however, are unambiguous. Most behavior changes are not so simple to evaluate. The difficulty is that often many processes are going on simultaneously. They overlap and interlock. Following the loss of sight the person usually experiences low self-esteem. He is in counseling, but he is also learning braille, taking mobility lessons, and learning to do his own housekeeping. His self-esteem is increasing, but it would be impossible to classify the relative contribution of each segment of the rehabilitation program.

### Report of the Therapist

The report of the therapist is another means of measuring counseling effectiveness. The therapist knows better than anyone what is happening to his client. He knows how depressed his patient was when she first came in for counseling, and that now she even laughs once in a while. He knows that the man who is now telling him about his success in mobility lessons and the job he soon expects to get, was suicidal six months ago. His clients may not have always liked the interpretations he made or always agree with him, but he watched them change during the course of counseling. He encouraged them in the acquisition of necessary skills and watched their growth of self-esteem. He knows that each staff member who worked with a particular client contributed something. But, he also knows his own contribution was worthwhile, and the counseling he provided was effective.

*Mr. Schulz is a consulting psychologist and counselor, Braille Institute of America, Los Angeles.*



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# Review

**Understanding the Deaf/Blind Child**, by Peggy Freeman, London: Heinemann Health Books, 1975, 126 pp. \$1.25.

**Reviewed by Edwin K. Hammer, Ph.D.**

A warm and knowledgeable book has been written by Peggy Freeman to aid parents of deaf-blind children understand their child's growth and development. Even beyond this much needed type of information, Mrs. Freeman has presented methods and materials that will be helpful not only to parents but also to teachers of multiply handicapped children. The basic idea of the book is that learning is a lifelong occupation and that parents can help the child make the most of abilities. As a parent of a deaf-blind child, Mrs. Freeman recognizes the importance of the parent's role in the development of the child. As a teacher of multiply handicapped children, Mrs. Freeman offers an important challenge: "Never mind about the things he doesn't possess, use those he has."

The first year of growth and development forms the central focus of the book. For those who understand that the first year of growth and development does not always correspond directly to the first year of life, this book will serve as a major guide in teaching and helping deaf-blind children. A sound perspective of child development is presented to orient the ways children learn and the interrelationship of systems of behavior. Attention is then turned to specific areas of development which need emphasis—communication, social training, motor training, mobility, emotional development, and play. Sequences of activities are shared which allow for flexibility to better meet the needs of the child. For example, the illustration of play as a time of organizing the child's world is presented with the role of the adult included to explain what the adult can do to help the child without turning play into repetitious structure. The reasons for play as a part of development are given with suggestions for ways to assist the deaf-blind child in play activities which lead to greater learning experiences.

This is an important book. It synthesizes child growth and development with educational practices necessary to assure total programming for the total child. It provides ample information to enable parents to help their child. It also provides parents with a better understanding of the educational program. It places in perspective the need for parental involvement in the child's habilitation program. This book will also serve teachers as an aid in working with deaf-blind children and their families by providing them with information regarding home-centered activities and an understanding of what can be done for the deaf-blind child.

*Dr. Hammer is associate professor of human development, University of Texas and project director, South Central Regional Center for Deaf-Blind Children, Dallas.*

**Stamps Which Honor and Aid the Blind**, Exhibit Catalog, Kenneth Stuckey, Ed. Perkins School for the Blind, Watertown, Massachusetts, 1975, 29 pp., free.

**Reviewed by Marguerite L. Levine**

This catalog is based on an exhibit at the Cardinal Spellman Philatelic Museum, Weston, Massachusetts, held May 18 through August 30, 1975, in conjunction with the celebration of the Louis Braille Memorial Year. The editor is curator of the Samuel P. Hayes Research Library at Perkins School for the Blind.

Philatelists and collectors of blindiana will welcome this excellent compilation. Since 1840 when the first adhesive stamp was produced in England, great nations and small territories have shown interest in the philately of blindness, its prevention, and its heroes. The United States is represented in the catalog by two stamps, one honoring W.C. Handy, blind jazz musician, the "Father of the Blues," and the other honoring Joseph Pulitzer, the newspaper editor, who, after losing his sight, continued to pursue his career for more than 20 years. Helen Keller, it seems, must wait until 1978—ten years after her death—to be honored by the U.S. Postal Service.

Nevertheless, Mr. Stuckey is to be praised for a well organized catalog. The first part contains a list of subjects subdivided by countries, date of issue, and Scott catalog number. It is a valuable introduction to the second part which contains actual representations of the stamps. Here we are reminded that such universally recognized geniuses as Johann Sebastian Bach and Galileo were both blind in their later years. A surprise is the Republic of San Marino issue honoring Finis E. Davis as president of Lions International, but equally well known in this field as vice-president and general manager of the American Printing House for the Blind, Inc. One does deplore the fact that this photocopy publication cannot render justice to the quality of some of the stamps.

This reviewer urges the readers of the *New Outlook for the Blind* to write to their congressmen and plead for the issuance of a stamp honoring Helen Keller on the centennial of her birth in 1980.

*Ms. Levine is in charge of the Helen Keller Archives at the American Foundation for the Blind.*

**Get A Wiggle On: A Guide for Helping Visually Impaired Children Grow**, by Sherry Raynor and Richard Drouillard. Edited by Lou Alonso. Mason, Michigan: Ingham Intermediate School District, 1975. 77 p.

**Reviewed by Dava Grayson**

Designed to "assist those persons who are in contact with blind or visually impaired infants," the material in this pamphlet is presented simply enough to be understood easily by the nonprofessional, i.e. the parent, and at the same time by useful to persons working with the visually impaired

child in any capacity. The authors recognize that although "it is true that blind children are more like than different from other children," the blind child does need special attention to compensate for lack of vision. (Oddly enough, this is something that not everyone in the field seems willing to come out and say.) Thus the pamphlet deals primarily with how to stimulate the infant's other senses, explaining why the parent may not bother to do this and what can happen as a result (e.g., that the baby who is not given enough stimulation may lie quietly in the crib like a "good" child but will stop paying attention to the world around him).

The tone of the material is, as it should be, positive, with its emphasis upon helping the baby grow to become an independent person. Although several of the points the authors wish to make are repeated more than once, this is probably a good way of helping the general reader absorb them. My only criticisms are that the pamphlet could have been more useful had it been expanded to be more specific, perhaps even into a handbook on how to encourage or teach certain skills to the baby and young child; and that the style of writing—as if the baby were talking to the reader—may be a bit too "cute" for some tastes (mine included).

On the whole, however, "Get a Wiggle On" is a welcome addition to the growing but still inadequate body of material on visual impairment in infancy and early childhood.

*Ms. Grayson is a New Outlook editor.*

**TLC—My Way**, by Marilyn Swieringa. Grand Rapids, Michigan: Institute for the Development of Creative Child Care. 1974.

**Reviewed by Beth J. Phillips**

This illustrated pamphlet, based upon personal experiences of the author, presents, in a light and humorous anecdotal way, problems the person with visual impairment encounters as a hospital patient. Not all of the problems, however, are unique to blind persons. The list of suggestions at the end succinctly presents fifteen points that hospital personnel should keep in mind in caring for the blind patient. Some relate specifically to persons with impaired vision but several suggestions are of equal importance to physically disabled persons, e.g., do not change placement of items on the night stand without asking or informing the patient. Many would make any patient's life happier, e.g., share yourself, spread good cheer and humor.

The suggestions contained in this booklet and its overall message—to care—are applicable and should be helpful to all levels of personnel, both professional and non-professional, in patient-care facilities.

*Ms. Phillips is director of the low vision project, American Foundation for the Blind, New York City.*



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# Current Literature

*A report of significant new additions to the Migel Memorial Library of the American Foundation for the Blind, prepared by Elaine M. Siegel, librarian.*

## Attitudes & Adjustment

**Alice Meets a Blind Hatter**, by Carol Lewis. *The New Beacon* (Royal National Institute for the Blind, 224 Great Portland Street, London WIN 6AA, England), Vol. 59, No. 698, June 1975, pp. 147-150. In this parody, Alice and the blind Hatter humorously reveal many of the public's misconceptions about blindness, distinctions implied by the terms "visually handicapped," "blind," "partially sighted," "legally blind," and attitudes of the blind and sighted regarding integration of the blind into the mainstream of society.

## Biography

**Ronnie Milsap: Something I've Never Done Before**, by B.T. Kimbrough. *Dialogue* (Dialogue Publications, Inc., Berwyn, Illinois 60402), Vol. 14, No. 2, Summer 1975, pp. 1-3. The rise to fame of blind country music performer and composer Ronnie Milsap is outlined. Milsap explains how, using brailled lyrics and chord notations, he prepares for Nashville recording sessions; how he checks the configuration of stage, equipment, and audience area prior to a concert performance.

## Causes of Blindness

**Going Blind on Eye Street**, by William Hofer. *Today's Health* (American Medical Association, 535 N. Dearborn Street, Chicago 60610), Vol. 53, June 1975, pp. 42, 45, 46. This article documents the onset and eventual diagnosis of Washington, D.C. attorney Harry Wender's affliction with failing and clouded vision due to bits of cellular material or "floaters" in the vitreous fluid of the eyes. After six years, the case was diagnosed as a rare instance of ocular histoplasmosis, a fungus infection contracted by breathing dust from pigeon feces accumulated on window ledge and air conditioning unit. Cortisone treatment and trifocal lenses were prescribed to arrest further eye damage and enhance remaining vision.

## Education

**Industrial Arts Curriculum Guide, Revised 1967**. The Oak Hill School (The Connecticut Institute for the Blind, 120 Holcomb Street, Hartford, Connecticut 06112), 1967, 126p. \$1.50. This guide encompasses the industrial arts curriculum for grades 4-12. Following an introductory treatment of general objectives, safety, and evaluation considerations, are outlined lesson plans, arranged by grade levels, in such areas as ceramics, electricity, home repairs, metalworking, power mechanics, repetitive production assembly, woodworking, and chair

reseating. Additional sections relate to the mentally retarded visually handicapped student, and to plans for such innovations as programs for girls, for the primary school level, and new units.

**Public Education for Blind Children**, by Sally Rogow. *Education Canada* (Canadian Education Association, 252 Bloor Street West, Toronto, Ontario, Canada M5S 1V5), Vol. 15, Summer 1975, pp. 37-40. The author, associate professor in special education at the University of British Columbia, Vancouver, notes the trend toward integration of the blind student into Canada's public schools, colleges, and universities. This change has been effected through such measures as adapted curricula, itinerant resource teachers, learning materials resource centers, technological advances such as the Optacon, improved teacher training, and cooperation between residential and public schools.

## Legislation

**An Evaluation of the Organization of State Programs to Serve the Blind . . . And A Suggested Evaluation Sequence (Volume I) and The Legal Analysis of the Organization of State Programs to Serve the Blind (Volume II)**, by Management Services Associates, Inc. (The Author, P.O. Box 3750, Austin, Texas 78764), 1975, 245p. total. This two-volume work represents the results of a year-long study supported by the American Foundation for the Blind, the Seeing Eye Foundation, and the Visual Research Foundation. Sections include: the organizations serving the blind and their impact on the delivery system, an evaluation model, and legislation, arranged by state, pertaining to the blind.

## Library & Reading Services

**Special Library Services. Illinois Libraries** (Illinois State Library, Springfield, Illinois 62756), Vol. 57, No. 7, September 1975, pp. 446-468. This five-article series focuses on: local responsibility for services to the blind and physically handicapped, as exemplified by the Illinois network; the development and expansion of the Library of Congress national service system; the establishment of multi-state centers; and radio reading programs for the blind.

## Orientation & Mobility

**The Sonic Guide and Distance Vision Training**, by Kent Carter. *Optometric Weekly* (Professional Press, Inc., 101 East Ontario Street, Chicago, Illinois 60611), Vol. 66, No. 33, September 25, 1975, pp. 907-911. The author contrasts two recent developments in devices for low vision—the reversed telescope and prism lenses—with the sonic guide. The latter's advantages as a low-vision distance training device are stressed.

**Wheeled Mobility Aid for the Blind**, by Yoshio Muranaka. *Bulletin of the Tokyo Metropolitan Rehabilitation Center for the Physically and Mentally Handicapped* (The Center, 43 Toyama-cho, Shinjuku-ku, Tokyo, Japan), March 1975, pp. 19-25. Illustrated study of an experimental prototype,

developed in Japan, of a wheeled mobility device, incorporating mechanisms for obstacle avoidance, distance measuring, and orientation and course holding. A comparison is drawn between this aid and others such as the sonic glasses and the long cane.

## Psychology

**The Psychology of Blindness**, by Donald D. Kirtley. Nelson-Hall Publishers (325 W. Jackson Blvd., Chicago, Illinois 60606), 1975, 312p. \$15.00. The author, an associate professor of psychology, marriage and family counselor, and blind himself for over twenty years, divides the book into two sections. The first is concerned with attitudes toward blindness; the second includes sketches of some prominent blind persons, as well as chapters on adjustment to blindness. The book's most unique contribution is an in-depth analysis of the personality of the blind, as revealed through the interpretation of their dreams.

## Recreation

**Weaving the Way to Freedom. The Lion** (Lions International, York & Cermak Road, Oak Brook, Illinois 60521), Vol. 58, No. 3, September 1975, pp. 6, 26. A weaving guide, developed by Tom Davis, enables the blind weaver to produce intricate designs without having to memorize the patterns. The device, about a foot high and wide, has a "bracelet" with small domino counters on wooden blocks which can be felt to determine which threads to push through the loom, and where to resume the pattern if work is interrupted.

## Vocational Rehabilitation

**Determination of Caseload Feasibility**, by Joseph T. Kunce, Carmine U. Iacone and Douglas E. Miller. *Journal of Applied Rehabilitation Counseling* (National Rehabilitation Counseling Association, 1522 K Street, N.W., Washington, D.C. 20005), Vol. 5, No. 4, Winter 1975, pp. 215-219. This study uses the criterion of client placement salary as the measure of effectiveness of vocational rehabilitation. The predictability of rehabilitation outcomes for blind clients of seven state rehabilitation agencies, along with the implications of prediction scores for evaluating programs and caseload difficulty, are explored.

## ADDITIONAL LISTINGS

*A classified listing of books, articles, directories, pamphlets, and other material of interest to the readers of the New Outlook for the Blind, prepared by the editors. Please write to the source listed in each entry if copies or more information is desired; the materials are not available from the New Outlook or the American Foundation for the Blind.*

## Administration

**Four Professions: How Different, How Alike**, by Alan Gartner. *Social Work* (Na-



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tional Association of Social Workers, 49 Sheridan Avenue, Albany, New York 12210), September, 1975, Vol. 20, No. 5, pp. 353-358. A look at theory and practice in social work, medicine, law, and education. The author discusses who goes into each profession, why these professions differ widely in status, and how social work and education are often paired against the other two.

### Attitudes and Adjustment

**Quasi-Legal Barriers to Adjustment to Disability; Accident and Hospitalization Insurance**, by Bobby G. Greer, William M. Jenkins, and W. Wallace Flint. *Rehabilitation Literature* (National Easter Seal Society, 2023 W. Ogden Avenue, Chicago, Illinois 60612), August 1975, Vol. 36, No. 8, pp. 247-250. Many insurance companies exclude coverage for "pre-existing conditions." For disabled persons this means that they might not be able to collect on accidents or diseases even remotely related to their handicap. The authors question the legality of this policy and outline its implications in rehabilitation and employment of the handicapped.

### Braille, Large Type, and Recorded Materials

**Expectations 1975.** Braille Institute of America (741 N. Vermont Avenue, Los Angeles, Ca. 90029). Available in braille, free. An anthology of current children's literature for children in grades three through six.

**How to Read Braille Music**, by Bettye Krolick. Available in braille from the Braille Book Bank, (National Braille Association, 85 Godwin Avenue, Midland Park, New Jersey 07432). An instruction manual for learning braille music notations.

**Inspirational Series in Large Print, Spring 1975.** G.K. Hall & Co., (70 Lincoln Street, Boston, Mass. 02111), free. A catalog of new books on religious themes available from the publisher.

**Anyone for Bridge?** by Shirley Rice. Thneeds, Inc., (6400 Southern Boulevard, P.O. Box 3302, Youngstown, Ohio 44512). \$14.95. A cassette program for beginner, intermediate, and advanced bridge players. All bidding sequences are covered as well as leads, defense, and declarer play.

**So What About Sewing**, by Adele Brown. The Catholic Guild for the Visually Impaired, (67 W. Division Street, Chicago, Illinois 60610), 1975. \$10.00. Available in braille and large type. An instruction manual and reference guide for sewing by hand or machine.

### Diabetes

**The War Against Diabetes**, by Ira Lauffer, M.D. Saturday Review Press, (380 Madison Avenue, New York, N.Y. 10017), 1976. \$7.95. A survey of the fight against diabetes by the president of the New York Diabetes Association.

# News in Brief

■ Dr. John W. Ferree, who retired in 1969 as executive director of the National Society for the Prevention of Blindness, died October 24, 1975 in Pleasantville, New York. He was 71 years old.

Dr. Ferree had a long career in public health work and had for many years been associated with the field of work for the blind and visually handicapped. In 1959 he was appointed executive director of NSPB and held the post until his retirement. He also served as a director and member of the executive committee of the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped (NAC), a member of the National Advisory Eye Council and the National Institutes of Health, and secretary-general for the International Association for the Prevention of Blindness.

He was a life member of the American Public Health Association and a diplomat of the American Board of Preventive Medicine.

■ A prototype reading machine capable of translating printed material into English speech has been developed by Kurzweil Computer Products, Inc. (68 Rogers Street, Cambridge, Mass. 02142). The reading machine electro-optically scans lines of ink-print, recognizes the scanned characters, determines the correct pronunciation of each word, then relays the information in the form of synthesized speech.

■ The City Community College of New York City is running a 30-week free training program in data processing for the deaf. Included in the curriculum are basic accounting, bookkeeping, key-punch operations and basic computer skills. The certificate course is funded by a federal Vocational Education Act grant.

■ Lexicon, Inc. has announced the availability of its new speech compressor/expander, Varispeech II. Varispeech II, which sells for \$595., enables the listener to play back standard cassettes at rates continuously adjustable over a five to one speed range. This self-pacing allows the user to speed up or slow down the listening rate according to his needs. For further information, contact Ronald P. Noonan, Lexicon, Inc., 60 Turner Street, Waltham, Mass. 02154.

■ The publishers of *Reader's Digest* announced that the annual subscription price of the large type edition has been reduced from \$19.95 to \$16.95. Additional ordering information may be obtained from Ellen Parker, *Reader's Digest*, Pleasantville, New York 10570.

■ A weekly radio program. "The Disabled—Rights and Wrongs," recently began its second season with WNYE-FM, New York. The show is hosted by Bob Moss, founder of the Paralyzed Veterans of America and the National Paraplegia Foundation. Such topics as rehabilitation, architectural barriers, education, public attitudes, research and cures are discussed on the program.

■ The National Museum of Natural History of the Smithsonian Institution, Washington, D.C., has many displays open for tactile inspection. Earphones can also be rented which provide a commentary on many of the museum exhibits with accompanying animal sounds or ethnic music.

■ Joseph F. Clunk, an outstanding leader in vocational placement of blind persons, died in October, 1975. Mr. Clunk began working in this field in 1920, two years after he lost his own sight, as the executive secretary of the Youngstown Society for the Blind. In 1928 Mr. Clunk was invited to organize a vocational placement service for the Canadian National Institute for the Blind. While he held this position, Mr. Clunk pioneered the establishment of blind men and women as vending standing operators.

In 1937 he was appointed chief of services for the blind in the U.S. Office of Education, where he administered the Randolph-Sheppard Act. After leaving the government post he served as managing director of the Philadelphia Branch of the Pennsylvania Association for the Blind.

## APPOINTMENTS

■ National Eye Institute: **William F. Raub**, associate director of extramural and collaborative programs.

■ Kansas Services for the Blind and Visually Handicapped: **Craig Williamson**, supervisor of vocational rehabilitation services.

■ New York Association for the Blind: Five new members elected to the board of directors—**Dr. Arnold S. Breakey**, **Walter W. Nelson**, **James H. Richardson**, **Mrs. Stuyvesant Wainwright II**, **Mrs. Jon Wurtzburger**. Elected to positions of honorary directors are two former board members, **Enos Curtin** and **James A. Fowler Jr.**

■ Tennessee Department of Human Resources, Division of Services for the Blind: **William J. Ferrell**, director.

## AWARDS

■ Bell Greve Award for Outstanding Leadership in Rehabilitation, National Rehabilitation Association: **Senator Jennings Randolph**.

## COMING EVENTS

### February

1-7 Candian White Cane Week.

8-11 Council for Exceptional Children, Conference on Right to Education/Placement of Exceptional Children, New Orleans.

24-26 Association of Rehabilitation Facilities, Seminar on Developing and Integrated Management System, Birmingham, Alabama.

29-March 3 Council on Social Work Education, Annual Program Meeting, Philadelphia.

### March

3-7 American Orthopsychiatric Association, Annual Meeting, Atlanta.

28-April 2 Second International Congress on Prosthetics Techniques and Functional Rehabilitation, Cannes, France.

### April

4-9 Council for Exceptional Children, 54th Annual International Convention, Chicago.

5-9 European Congress of Ophthalmology, Hamburg, Germany.

9-13 American Occupational Therapy Association, Mid-Year Meeting, Atlanta, Georgia.

### May

14-16 American Ophthalmological Society, Kilauea, Hawaii.

16-20 American Federation of Labor and Congress of Industrial Organizations, 18th National Conference on Community Services, Washington, D.C.

### June

13-16 National Conference on Social Welfare, 103rd Annual Forum, Washington, D.C.

13-18 XIII World Rehabilitation Council, Tel Aviv, Israel.

26-July 1 American Medical Association, Annual Convention, Dallas.

27-July 2 American Physical Therapy Association, New Orleans, Louisiana.

28-July 2 American Home Economics Association, Annual Meeting, Minneapolis, Minnesota.

### September

12-16 American Academy of Ophthalmology and Otolaryngology, Las Vegas.

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# THE NEW **Outlook** FOR THE BLIND

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## Developmental Needs in Blind Infants



THE NEW FOR THE BLIND

# Outlook

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Number 2

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# Developmental Needs in Blind Infants

**REBECCA F. DUBOSE, PH.D.**

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**Abstract:** *Developmental needs of blind infants require additional training procedures that enlightened parents can provide if they are made aware of the needs before the child passes critical learning periods. Physical, cognitive-adaptive, and social-emotional needs are cited and suggestions for meeting these needs are presented.*

■ The birth process is a vivid portrayal of the role parents must play if a child is to adapt to the demands society places upon him at any given age. This letting-go process begins with the physical release of the new-born, and encompasses the mental and emotional freeing which must take place if the baby is to become a self-sufficient member of society. Fortunately or unfortunately, as the case may be, a baby does not come with a set of instructions explaining how he operates or what is needed to cause him to grow physically, mentally, and emotionally. His only vehicle for communicating his needs is that of crying. Parents learn to observe and interpret their child's behavior, and their responses influence their child's future actions. If the baby is successful in getting what he wants, he will continue to use that method. Robert Scott's (1969) very moving declaration that "blind men are made, not born" is a testimony to the ease with which the human organism can be shaped into what significant others want it to be. It is a task of parents to shape their child's early behavior into forms that are acceptable by society and to provide him with fundamental skills which allow him to develop into a unique individual totally responsible for his own being.

The similitude of the birth event to that of parents' role in raising a child applies to parents both of handicapped and non-handicapped children. However, in spite of the overstated advice of many special educators, "Just treat him as you would treat a normal child," parents of a handicapped child must respond to him differently because his basic needs are often quite different from those of his normal siblings. The effects of blindness on physical, cognitive-adaptive, and social-emotional needs will be identified and described. cursory suggestions of stimulation activities to respond to those needs are cited further on in this article.

**PHYSICAL AND MOTOR DEVELOPMENT** The child's physical needs in terms of medical maintenance are the easiest for the parents to meet. Expert medical care is available and is usually solicited as soon as the need is apparent. The ophthalmologist offers a strong support system for the parents as he not only understands the child's visual problems but knows other parents who have also faced such disappointing realizations. If parents need financial help in meeting their child's medical needs, a number of charitable agencies are able to assist them. Thus, parents can frequently meet their child's medical needs through outside financial resources and expert medical consultation.

Physical needs not related to vision are for the most part similar to the physical needs of non-impaired children, and do not pose confusing problems for parents of young blind children. Thus, unfortunately, little attention is paid to the child's physical development until he is ready for mobility training, by which time intervention is far more difficult. The blind child does in fact have physical needs that are different from those of the sighted child, and parents can play an important role in helping the child compensate for his visual loss if they are aware of why the child needs help and what they can do about it.

Chaney and Kephart (1968) describe four general motor skills of significance in the education of sensory-handicapped children: 1) balance and posture, 2) locomotion, 3) contact, and 4) receipt and propulsion. The need for the development of these skills can be clearly illustrated in the experiences of young blind children.

**BALANCE AND POSTURE** Balance and posture skills begin developing in the blind infant in the same manner as in the sighted infant. However, Fraiberg (1968) found that although blind babies demonstrated postural readiness for creeping by supporting themselves on hands and knees, they simply maintained that posture and rocked for several months rather than entering the creeping stage as did sighted infants. Balance and posture skills again reached a

# Developmental Needs

developmental impasse when the babies stood for several months before developing walking skills. Balance and posture require internalization of one's position in space, so that the effect of body movement on the gravity center of the body can result in appropriate postural adjustments.

Locomotion needs are especially important in the life of the young blind child, as it is through such pathways that he investigates spatial directions, spatial orientation, relationships between objects in space, and his environment in general. As noted above, Fraiberg (1968) found walking to be four to five months delayed in blind babies. Running, hopping, jumping, and skipping have also been found to be delayed in blind children (Folio, 1974).

## Contact, Receipt and Propulsion

It is through contact skills that the child investigates relationships with objects. The skills involve reaching, grasping, and releasing objects. Fraiberg (1968) found that blind babies maintained their hands at shoulder height in a neonatal posture rather than engaging them in midline activities at the appropriate developmental stage. The sustained fingering found in sighted infants requires vision for its practice, and without additional help from parents, the totally blind child's hands may fail to unite at midline, and thus the coordinated use of the hands that is needed for reaching, grasping, manipulating, transferring, and releasing objects may be impeded.

The impact of blindness on the development of receipt and propulsion skills has been demonstrated in motor evaluations of blind children at the Peabody College Child Study Center. Delay in the ability to throw and catch a ball far exceeded delays in other gross motor movements. The children could extend their hands to arm's length and fling a ball, but the proper throwing movement was seldom seen. Our conclusions were that ball activities had not been a part of the life experiences of young blind children, and that the absence of the skill was more a reflection of a sensory or educational deprivation than a motor deficit. Interestingly, one precocious blind child confirmed our suspicions by telling us, "My mommy says I can't play ball because I am blind."

## Encouraging Motor Development

In the four motor skills mentioned (balance and posture, locomotion, contact, receipt and propulsion) the influence of inefficient sensory receptors was found to be responsible for delays in motor development, and thus prevented the blind child from acquiring certain skills when other parts of his body were ripe to assimilate those skills. The teachable moment for those skills had passed. This is not to say the child does not acquire those skills—indeed, the blind babies in Fraiberg's study did learn fine and gross motor skills—but it may explain why the movements of blind children are often inefficient and imprecise.

Parents can do much to foster appropriate motor development in young blind children. Place highly stimulating objects (bottle, pacifier, noisemakers, favorite toys, etc.) above and in front of the infant's head to encourage head control in a raised position. Let the baby briefly touch objects, then withdraw them slightly to encourage search behavior. Using objects and support, encourage creeping behavior. In offering support for walking, place a rope or belt around the child's waist and let him hold it for support and security in walking. Have the child walk through a ladder on the ground to encourage him to pick up his feet and place them in a forward position. Plan activities to develop throwing and catching skills using an audible ball, sound target, auditory feedback, etc. The blind child also needs the opportunity to learn to run, hop, jump, skip, swim, and ride a





tricycle. He cannot see others engaging in these activities so the motivation to imitate these skills is not planted. It is the role of parents to provide the arena for such activities and to support, encourage, and challenge the blind child to acquire the necessary learned motor skills.

**COGNITIVE-ADAPTIVE DEVELOPMENT** The child's cognitive-adaptive needs are more difficult to meet. That large portion of learning that comes through detected observation may never appear in the child's repertoire if supplementary experiences and information are not provided. Cutsforth (1951) says "... no single mental activity of the congenitally blind child is not distorted by the absence of sight" (p. 3). In the early primary-reaction stage, visual pursuit of objects is essentially a sensorimotor response which later facilitates the development of cognitive schemas of object concept, object permanence, and causality. Fraiberg, Smith, and Adelson (1969) point out that adaptive substitution of sound for vision in intentional reaching does not occur until the last quarter of the first year, and that consequently higher-level skills may be further delayed. Later in the sensorimotor period, the sighted child visually observes forms and manipulations and then experiments with schemas in his own repertoire and is limited to objects within his grasp.

Blind children need experiences that allow and encourage them to develop mental operations, including skills of perceptual discrimination and association, recognition of positional and spatial relationships, closure, constancy, figure-ground, memory, convergent and divergent thinking, and evaluation. Parents can encourage the development of these cognitive-adaptive skills by providing activities that teach mental operations through auditory and tactual modes.

### Sorting and Closure

The recognition that things can have the same perceptual quality is an early developing concept. This enables the child to detect similarity and difference and to sort objects or sounds according to some perceptual quality. Beginning with two sets of items such as teaspoons and paper cups, the child learns to sort according to the category of the model. A corresponding auditory task would be discriminating drum sounds from bell sounds. From sorting, the child learns the association of exact perceptual qualities as seen in one-to-one matching. A texture board with squares of highly contrasting textures and a matching set of squares are excellent for this kind of training. Later activities can include the recognition of positional and spatial relationships through such tasks as matching corresponding patterns of toothpicks glued on squares, or recognizing sounds from different distances.

Tactual closure skills will greatly aid the child as he learns to read braille. Perceiving the gestalt of an object by feeling parts of it can be a delightful activity. This activity can begin with common household objects used by the child, such as his bowl, bottle, plate, and spoon, and can gradually involve more complicated objects with many different parts, such as a baby doll, a toy car, or clothing. Auditory closure can be trained through omitting parts of songs, phrases, names, etc. Similar tactual and auditory figure-ground discrimination can be incorporated into early training activities. Scanning a surface for a particular item or listening for a word or sound teaches the child to attend to the relevant dimension.

The recognition of perceptual constancy can also be included in early childhood training activities. Tactually observing that an object can change in one dimension, such as

size, yet remain the same object, listening as a person speaks in different tones, or noting that an infant grows into a toddler are a few ways to experience constancy.

**MEMORY AND EVALUATION** In addition to perceptual concepts, skills in memory, thinking, and evaluation are needed. Recently we tested a young blind child who demonstrated unusual ability on digit span tasks. When asked how he remembered so many numbers, he said, "I like to call my friends on the telephone, and it is too much trouble to braille their numbers so I just memorize them." This is certainly one way to use memory skills. Songs, poetry, nursery rhymes, and stories can be learned; but stress should also be placed on the *meaning* of the message, not just the rote memorization of words, or verbalism may result.

The ability to make sense out of input is vitally important. Convergent thinking requires comprehension of input and the ability to sense the relationships and associations between the input and stored information. Recognizing tactual and auditory similarities over a period of time or when a dimension has changed illustrates this mental operation. Divergent thinking requires the ability to go a step further and elaborate from the precept by adding another dimension or creating a new or novel work from what was given. The blind child can practice such skills in his art experiences as well as his play activities, but the development of this skill may well depend on his freedom to explore. The blind child will also need to develop the ability to evaluate input and make a judgment of its worth, adequacy, or adaptability. Certainly in terms of changing situations to meet his unique needs, this skill will be essential to the development of adaptive behavior.

**SOCIAL AND EMOTIONAL DEVELOPMENT** The importance of appropriate social-emotional development in the blind child cannot be overstated. DesLauriers and Carlson (1969) describe the child's need to have the pleasurable satisfaction of being a human surrounded by humans and welcomed into the world if he is to grow properly. The congenitally blind infant's entrance into the world is met with considerably more anxiety than that of the non-impaired infant. Axline (1954) states that parents are charged with shock, disappointment, a sense of failure and inadequacy, and a feeling of guilt. The ability of parents to adjust to this disappointment and to provide their child with the experiences he needs for social maturation is probably the single most influential factor in the child's development. Appropriate social-emotional development will be reflected in three relationships: 1) child to self, 2) child to parent, and 3) child to others.

The child's self-concept develops from this interpretation of how others see him. Cooley (1902) calls this the "Looking-glass Theory" and states that it is from parents that the child develops an estimate of himself. If the child is viewed as an object of pity, sympathy, and social inferiority, then he will learn to fill that role. Almost invariably when handicapped children are taken to the park or on a trip into the community, strangers will try to give them money. These well-wishers are motivated by pity, not affection. Allowing the children to be passive recipients of such actions teaches them the social role of Scott's (1969) "blindman," and only serves the donor by temporarily relieving him of a guilty conscience.

The child's relationship to his parents is the most important association in his life. According to Lowenfeld (1964), the way the parents really feel about their child is far more



influential in the child's development than the particular techniques or methods they employ in child rearing. They hold the string to his independence, and they must slowly let it go, giving him all the freedom he can handle at a given age so that he can develop self-reliance and the ability to function quite apart from them.

The child's relationship with others will also effect his social-emotional development. If the community views him as an object of pity or shame, he can easily be shaped into such an image. Family members, friends, neighbors, teachers, and peers will either help or hinder his development by the way they perceive him. Like his parents, they too must force the blind child into independence, by allowing him the freedom to make mistakes in his learning process.

### Parent's Role

There are many things that parents can do to develop social-emotional maturity in young blind children. The blind child needs help in learning to make decisions about what he can and cannot do. Simply telling him he cannot do something because he is blind teaches him to use this as an excuse for not attempting new experiences. He needs help in learning to find his way independently around the environment, locate his clothes, dress himself, and feed himself. He needs help in reaching objectives by using his tactile sense rather than his visual sense. For example, when he has a friend over and it is time for them to divide a bottle of soda pop, he should be allowed to divide the pop (as a young host should do) rather than having his sighted guest fill the host's social role. Protection appears to be a key word in describing how parents view their role in the life of the young blind child. He does need protection, but unfortunately he gets a protection that prohibits rather than a protection that frees. Perhaps his greatest social need is protection from those who would make him a "blindman."

**SUMMARY** The developmental needs of young blind children require that parents help them acquire physical, cognitive-adaptive, and social-emotional skills that would not come naturally to a child who cannot see. It requires additional experiences, more explanations, patience, understanding, love, and freedom. If the steps are taken in infancy, then *perhaps* the child will discover that "there is nothing in the loss of sight itself that prevents an individual from doing anything but seeing" (Monbeck, 1972).

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## National Commission on Diabetes Reports to Congress

Diabetes, currently the leading cause of new cases of blindness in the United States, has now been added to those major diseases or conditions singled out for campaigns aimed at Congress for long-range federal research spending.

Cited as this country's third-ranking cause of death (the first two are heart disease and cancer) by the National Commission on Diabetes in a report to Congress, there are approximately 10 million persons in the U.S. with diabetes today, and it is estimated that the number will double every 15 years.

While specific causes of the condition are unknown, persons with the greatest chance of developing diabetes fall into the following categories: women are more likely to develop diabetes than men; lower-income persons more likely than middle and upper-income persons to have it, and non-whites more likely than whites. In addition, the likelihood of having diabetes increases with age, doubling every decade, and with every 20 percent of excess weight.

The proposed plan of the National Commission on Diabetes asks for a tripling of national research spending within a four-year period, or about \$548 million. Some critics of this plan object to it on the grounds that insufficient funds have been allocated for those branches of the National Institutes of Health that deal with the major complications of the condition, including those affecting vision. It is estimated that the diabetic has a 25 percent greater chance of becoming blind than the non-diabetic.

## Blindness Statistics from the USSR

A recent report from the All-Russia Association of the Blind provides some interesting figures on the numbers and activities of blind persons in the Russian Federation (the largest) of the Union of Soviet Socialist Republics.

There are 168,200 blind persons in the All-Russia Association. More than 58,000 of them are employed by one of the Association's 224 training-production centers. The main employment categories in the centers are electrical and radio technology, metal working, instrument making, mechanical engineering.

In addition, more than 5000 visually handicapped persons are employed in professional and academic areas. There are more than 200 blind teachers in higher education and 1500 secondary school teachers. Others are employed in research institutes, computer centers, medicine, and basic science.

The visually handicapped in the Russian Federation use mobile libraries which at present have more than 108,000 users. They can draw from a stock of about three million books, of which more than a million and a half are in braille and about 1500 on talking books.

Education is compulsory for blind children. There are 73 schools for the blind with more than 12,000 students. About 500 visually handicapped persons are now studying in universities and more than 5000 blind adults are taking courses in day time, evening and correspondence secondary schools.



# Blindness and Early Development: Issues in Research Methodology

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**Abstract:** *An examination of the research models used extensively with the blind child and various kinds of methodological weakness that decrease the value of research. Specific problems areas discussed include subject size and description, statistical methods, random selection problems, control groups. Finally, a research model for the future is proposed. The model is hierarchical, that is, research on a characteristic that includes attention to etiology and real-life behavior along with evaluation. Finally, some remaining problems are discussed.*

**Note:** *This article is adapted from the author's forthcoming book on early development and blindness which will be published by the American Foundation for the Blind. The tentative publication date is summer 1976.*

■ In some ways, I have become disappointed with the body of literature on visual impairment and child development. The disappointment centers around my impression that the sum of real knowledge that can be distilled from this literature seems small in relation to the effort that has gone into producing it. There are two major reasons for this situation. One concerns the research models that have been used extensively with the blind child. Most of the models have been borrowed with little or no modification from research with sighted children and are therefore not ideally suited for research with a population that is both extremely heterogeneous and relatively scarce. In the latter part of this paper, I will propose a model that I think is much more suitable for research with blind children.

The second reason has to do with quality. Much of the work on blindness is characterized by various types of methodological weakness that decrease the value of the research. The purpose of the first section of this paper is to point out some of these more common weaknesses and to suggest ways in which they might be avoided or ameliorated. Some of the problems are inherent in the study of any heterogeneous group of events, and these problems cannot be totally avoided. They can, however, often be handled in ways that minimize the researcher's disadvantage, and in fact some aspects of heterogeneity may be effectively exploited to the researcher's advantage. Another category of problems involves those difficulties that could and should be avoided by conscientious and well-informed researchers. Good research is difficult to do, but bad research is not worth doing at all. It would be of benefit to the field to have far fewer studies done each year if they were done as well as is possible within the constraints of the subject matter. Even more discouraging than reading poorly executed research is reading about research that might well have been good work, but that is reported in such a way that one does not know whether it was in fact good or bad, or what may be safely concluded from it.

## Subject selection and description

Perhaps the most serious, and at the same time the most common, shortcoming of research on blindness is the failure to specify and analyze adequately certain important characteristics of the samples. The characteristics that will be discussed undoubtedly have more influence on the results in some areas of research than in others. Even so, it is rarely if ever justified to omit consideration of these characteristics. The variables in question here include chronological age (CA), IQ or mental age (MA), residual vision, cause of blindness, age at onset of blindness, and duration of blindness. Sex might also be included in this list, although it probably has a critical effect on results less often than the other variables.

All of these variables are "status" or "self-selected" variables. That is, they are characteristics that the subject brings with him to the research setting, and they are not under the potential control of the researcher. The researcher's most important responsibility with respect to these variables is to record and report them. The characteristics of the research sample simply must not be omitted in published reports. Although this point may seem self-evident, well over half of the research papers have some type of shortcoming in this area. Beyond the recording and reporting of these characteristics, the researcher has the further obligation to deal with the variables in both the research design (e.g., subject selection) and the statistical analysis portions of his work. The notion of heterogeneity of the blind population was



“... random selection of blind children for research samples is typically not possible. This fact does not necessarily decrease the value of the research, but it increases the burden on the experimenter. . .”

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introduced above, and it is particularly with respect to these self-selected variables that heterogeneity becomes an important issue. The sample available to any researcher almost certainly contains individuals who differ widely from one another on several or all of these variables.

### Dealing with Heterogeneity

The researcher has two general approaches available to deal with this heterogeneity. First, he can select a sample carefully to ensure homogeneity with respect to all of the variables that might possibly influence the dependent variables that he is interested in. (If this approach is chosen, the researcher is not absolved of the responsibility to describe the selection procedures and the characteristics of the resultant sample.) In general, this approach is extremely uneconomical with respect to use of potential subjects, since in order to obtain a homogeneous sample, the researcher may have to exclude a large proportion of the potential subjects on the grounds of their “status” on one or more of these variables. The second approach to the heterogeneity problem is to integrate the variation into the research design and the statistical analysis. Statistical procedures for treating heterogeneous samples are available, and their increasing use in conjunction with computerized treatment of data makes it quite possible to “control” these variables statistically rather than by subject selection. Thus, the researcher may consider such variables as part of the research design, in that he can plan from the outset to evaluate the variation in results that is attributable to these variables in much the same way that he evaluates the effect of a particular experimental “treatment.” There are several significant advantages to be gained from this second approach to heterogeneity. One is the increased economy of use of potential subjects. A second advantage is the possibility of evaluating, rather than simply eliminating, the effects of these variables. Such evaluation makes possible comparative conclusions about various subgroups of subjects, rather than requiring a restriction of the conclusions to a limited and homogeneous sample. Third, to the extent that these variables are found not to exert a significant effect on the dependent variables, more generalized conclusions may be drawn from the research than if a restricted homogeneous sample had been used. In connection with the situation where such variables are found not to have an effect on the dependent variables, these “negative” results should definitely be reported. In experimental research, there is often a concern with the interpretation of negative results. That is, when a particular experimental manipulation is not found to produce a difference in comparison to a control condition, the negative result always leaves open the possibility that the experimental manipulation chosen was not an adequate

way of operationalizing the variable in question, and that with a different approach, significant differences would have emerged. This conservatism, while fully in order for experimentally manipulated variables, is generally not warranted for self-selected variables. The difference is simply that these self-selected variables are not under the experimenter’s control, and thus barring his failure to adequately categorize his subjects on these variables or to measure the dependent variable in an appropriate way, there is nothing in the research itself on which to blame the failure to find differences. Thus the “no difference” result may be much more confidently represented as the true state of affairs.

**SELECTING STATISTICAL METHODS** There are several ways that statistical evaluation of self-selected variables may be done, and the method must be carefully selected on the basis of the nature of the variable and the distribution of the subjects on the variable. For the “nature of the variable,” the key distinction is whether the variable is a discrete or a continuous variable. A discrete variable is one where there is not a gradual progression from one category to another. A good example is cause of blindness, where it is not meaningful, for example, to speak of a gradation from retinoblastoma to RLF. For discrete variables, analysis should usually be done by separating the subjects into appropriate groups and comparing the groups on the dependent variable. All of the variables having to do with either time (CA, age at onset, duration of blindness) or amount (IQ, residual vision) are continuous variables. If a key condition is met by the sample, correlational analysis is usually the best method of evaluating the effects of these variables. That is, the dependent variable is correlated with the self-selected variable (e.g., texture discrimination ability with CA), and the statistical significance of the correlation is evaluated.

### The Self-Selected Variable

The key condition, and it is a very important one, is that in order to conduct correlational analysis, there must in fact be a reasonably continuous distribution of the subjects in the sample with respect to the self-selected variable. Thus, if the sample is reasonably distributed with respect to IQ, then correlation of the dependent variable with IQ may be conducted. If the sample shows clustering on the self-selected variable, though, correlational analysis may be inappropriate. This situation would occur, for example, if the researcher chose samples of first and fourth graders. The CA of the combined sample would be discontinuous, and the subjects would be bimodally distributed with concentrations in the six- and the nine-year ranges. In such a situation, two types of analysis should usually be conducted. First, the samples of first and fourth graders should be compared with each other by means of a *t*-test or other statistic designed for the comparison of groups. Second, correlational analysis should be conducted between CA and the dependent variable within each of the two CA clusters. A second, somewhat different, example may serve to round out this picture. Consider a situation where the age at onset of blindness ranged from birth to four years, and where the subjects (e.g., a group of six-year-olds) are tested on a task involving texture discrimination. In most such samples, there would be a cluster of subjects, perhaps half the total sample, who have been blind since birth. The others might have become blind at some time between zero and four years of age. Although age at onset is technically a continuous variable, it would not be appropriate in this case to correlate age at onset with



texture performance using the entire sample, since the relative concentration of subjects in the blind-from-birth end of the continuum would tend to suppress the possibility of discovering a significant correlation between the two variables. The appropriate procedure in such a case is to exclude the subjects who have been blind from birth, and then to correlate age at onset with the dependent variable only for the remaining subsample.

### Correlational Analysis

In general, when the characteristics of the sample allow it, the effects of these self-selected variables should be evaluated by correlational analysis rather than by comparing subgroups. There is a statistical basis for this argument. Consider a situation where some characteristic is studied in a group of children ranging in CA from five to 10. If the children are distributed across the entire CA range from five to 10, then it would be inappropriate to divide the children into groups (e.g., five through seven and eight through 10). Such a procedure would combine seven year olds with five year olds, and eight year olds with 10 year olds, in spite of the fact that the seven and eight year olds are more similar to one another than either is to the other extreme in its group. The effect of such grouping would be to constitute groups with a high degree of "built-in" CA variability, and the variability would artificially decrease the possibility of finding a significant relation between CA and the dependent variable. Correlational analysis, on the other hand, is specifically designed to make use of the variability in CA and is therefore the appropriate procedure for allowing a relationship between CA and the dependent variable to be discovered if in fact the relationship exists.

To complicate the matter of evaluation of self-selected variables still further, it is often the case that two or more of these variables should appropriately be considered in conjunction with one another since their potential effects are not independent of each other. An example is the relationship between age at onset and cause of blindness. RLF children almost all become effectively blind very early in the first year, while retinoblastoma children range much more widely in age of onset. Thus, the two variables have an interactive relation with one another; that is, they are not independent. If both retinoblastoma and RLF children were included in the same sample, then a simple correlational assessment of age at onset should not be made. Rather, the sample should be subdivided on the basis of cause of blindness. Correlational analysis of age of onset with the dependent variable should be conducted for the retinoblastoma group, but such an analysis would not be appropriate for the RLF group because of the extremely small variability in age of onset. There are several other examples of interdependencies among the self-selected variables under consideration, but they need not be detailed. It suffices to say that sophisticated and useful multivariate data analytic techniques are available for the treatment of such interactive relationships, and these methods should be used whenever appropriate.

**RANDOM SELECTION PROBLEMS** In working with sighted children, the researcher typically selects a sample or samples at random. That is, he chooses children to participate in the research in such a way that each child in the population theoretically has an equal chance of being included in the sample. The purpose of this procedure is to ensure, insofar as is possible, that the sample chosen for participation will not be nonrepresentative of the population

with respect to any characteristic that might affect the outcome of the experiment. While random selection is just as desirable in research with the blind, it is often not practical to use random subject selection procedures. There are usually relatively few children available in a given geographical area who belong to the population (e.g., elementary school children) under study, and the research typically must, in order to obtain a large enough sample for adequate statistical analysis, use all of the children who are available. Often, in fact, he must travel considerable distances in order to obtain a sufficiently large sample.

Thus, random selection of blind children for research samples is typically not possible. This fact does not necessarily decrease the value of the research, but it increases the burden on the experimenter to follow certain additional procedures, beyond those of the researcher who uses randomly selected groups, in order to make the research optimally useful to other workers. Above all, he must describe the characteristics of the children in the sample. There are numerous instances in the literature where the results from two apparently similar studies stood in direct contradiction to one another. As often as not, it is probably the case that such discrepancies are attributable to the fact that the two researchers were working with samples that were not equivalent. Each might have selected subjects without using any special selection criteria, but the two samples might nevertheless have been different simply because of the immense heterogeneity of the population of blind children. In attempting to resolve such discrepancies, it would be of great benefit to the reader to have as full a description of each of the samples as possible. It is thus incumbent on researchers with blind children to provide such descriptions.

It is particularly important to describe the subject selection procedures in studies of the incidence of such phenomenon as emotional disturbance or language disorders. It is almost hopeless, in attempting to make comparisons of the incidence of such phenomena in blind and sighted children, to be certain that the samples studied were truly representative of their respective populations. I do not see the overriding benefit of conducting such comparisons anyway, but if they are done, extremely careful attention to the representativeness of the samples is critical.

**USING CONTROL GROUPS** The heterogeneity of the population of blind children also has implications for studies that use control groups of blind children. A good example is a simple training study in which the effectiveness of a certain method of teaching a skill is evaluated. Typically, two groups would be selected, and one group would be exposed to the training while the other would not. Then the performance of the two groups on a criterion test of the skill would be compared in order to determine whether the trained group performed significantly better. In order to attribute any such superiority to the training procedures, though, it is critical to be sure that the groups were equivalent before the training began. Usually a pretest is conducted, and the groups are selected in such a way that the pretest performance is the same for the two groups. In training studies on blind children, however, this pretest matching may not be sufficient, since the two groups might be equivalent in pretest performance but still be significantly different in other ways that might influence the potential effect of the training and thus the posttest scores. A useful, but often very difficult, way of avoiding such group differences is to match the groups initially not only on the



# “The most accurate estimate of ability is obtained after performance on the task has stabilized.”

basis of the pretest but also on the basis of any other variables that might potentially create important incomparabilities between the groups. Often this procedure is not possible because of the limited pool of potential subjects. In this case, the effects of the variables for which matching was not possible should be evaluated in a *post hoc* fashion by appropriate means. Any differences between the groups would then require appropriate qualification of the results of the study.

In general, researchers should be extremely careful not to induce a mismatching of comparison groups by equating them on one relevant variable, when equating on that variable then produces a difference on another relevant variable. This problem often occurs in studies where blind and sighted groups are matched on the basis of school grade, and where this matching produces a mismatch on CA. The danger of CA mismatching tends to increase as school grade increases, since there is often a tendency for the range of CA to be wider for blind than for sighted children in the higher grades. This general matching problem is a serious one, and researchers should give it adequate attention in any research paradigm.

## Issues of Methodology and Research Design

There are a number of potential problems in the selection of ways to evaluate dependent variables. The purpose in selecting a task or other measure of an ability or characteristic is to represent adequately that ability or characteristic. A great deal of care is required in this aspect of research design since the results of a study are meaningful only to the extent that the characteristic being evaluated is validly represented by the method chosen to measure or test it. Although this point seems trivial, it bears some elaboration. First, adequate working definitions of variables must be provided. Two researchers may have quite different conceptions of spatial relations, for example, and they may thus choose quite different ways of measuring spatial relations ability. One may use a finger maze, while the other may choose a verbal test. Spatial relations is an exceedingly complex issue, and unless adequate definitions are provided within each study, it is not possible to fit the results of the study into an overall picture of spatial relations abilities. Second, it is valuable to provide an independent demonstration of the validity of the particular definition with respect to the characteristic being studied. Unless it is clear that a particular way of operationalizing a concept (e.g., spatial relations ability) is in fact a valid representation of that concept, the results of the study will be limited in generality. It is not very satisfying to conclude from a study that early blind subjects are worse at finger maze learning than later blind subjects, but a more general statement about differences in spatial relations abilities can only be made if it can be demonstrated that performance on the finger maze represents a valid aspect of spatial relations abilities. This is a difficult problem, and it has received insufficient attention. Later in this paper, a general approach to its solution will be suggested. The approach involves the inclusion of hierarchical levels of performance in the same study. For example,

assessment of finger maze performance may be accompanied by the assessment of behavior in more functional, real-life spatial relations situations.

Careful attention must be devoted to the selection of measures that are sensitive to differences in the subjects under study. The use of a task that is too easy leads to “ceiling effects,” where most of the subjects perform very well and therefore are not effectively differentiated by the task. The use of a task that is too difficult leads to similar problems. Task selection is especially difficult in research where the purpose is to assess the development of a characteristic over age. If a common task is used for all the children, age effects may be depressed at both the low and the high ends of the CA range because the task is respectively too difficult and too easy for the extremes. Some progress has been made in the design of tasks that can be appropriately varied in difficulty in order to make the task sensitive for a wide range of ages. The model for this type of task is, of course, the IQ test, where items spanning a wide range of difficulty are included. The more difficult items are omitted for the younger children on the assumption that very few of the children will answer them correctly, and the easier items are omitted for the older children.

## Comparing Different Groups

Another key to the selection of appropriate measures applies especially in research where different groups (e.g., blind and sighted children) are to be compared on the same task. Care must be taken to ensure that the task is appropriate for all groups. The use of IQ tests without consideration of the appropriateness of the items for the blind subjects is an example. This is often a difficult problem, and ways of solving it are not immediately apparent. Sometimes a “common sense” approach to the problem may be sufficient. A more rigorous, but also more difficult, approach is to conduct validation of the measure for each group. That is, the measure may be assessed, separately for each group, in the extent to which it predicts the characteristic under study. In any case, care must be taken, and if the researcher is not confident that the measure is appropriate for the various groups, then he must assess its appropriateness in a preliminary phase of the research.

In assessing performance on relatively complex tasks, it is important to consider the possibility that poor performance may occur not only as a result of the complex aspects of the task, but may also occur as a result of inadequate ability in the relatively simple components of the task. A good example is found in tasks involving intermodality relations. Consider a task that is designed to assess the ability to integrate auditory with tactual information. Poor performance on the integrative task may in fact be a result of poor integrative ability, but it may also be a result of poor ability to process either the auditory or the tactual information, regardless of the integrative demands of the task. In studies of performance on complex tasks, it is useful to include independent measures of performance on the simpler parts of the task.

**THE WARMUP EFFECT** It is particularly important in studies of perceptual and cognitive abilities to be aware of possible warmup effects, and to ensure that the subject fully understands the requirements of the task. The purpose of assessing performance on a controlled task is to enable statements to be made about the ability of which the task is designed to be representative. To the extent that a subject shows an improvement in performance during the course of the task, the conclusion about his ability will tend



to err in the direction of underestimating the ability. The most accurate estimate of ability is obtained after performance on the task has stabilized. It is especially important to consider possible warmup effects when the performance of two or more groups is compared. If one group for some reason shows a more protracted warmup effect, then its ability will tend to be underestimated in comparison to that of another group that shows a shorter warmup effect. A good example of the danger of the warmup effect may be found in the comparison of the performance of blind subjects with that of blindfolded sighted subjects. The blindfolded sighted subjects may show a more pronounced warmup effect than the blind subjects, and unless care is taken to compare stabilized performance, there will be a tendency to underestimate the ability of the sighted subjects. Useful information may be gained from the warmup effect itself, and it is often instructive to record and analyze performance on warmup trials independently of the analysis of the stabilized performance. Warmup effects should not simply be controlled and then forgotten. Rather, their nature should be reported so that subsequent studies may be designed with that information available.

A final methodological point is directed to the use of a common pool of subjects in successive experiments. Because of the limited availability of blind subjects, it is sometimes necessary, either for the same researcher or different researchers, to use the same children in two or more successive studies. Caution must be used in such situations, since the child's participation in one experiment may have carryover effects on his performance in a subsequent experiment. When performance in the subsequent experiment is to be compared with that of a sample of sighted children, such a carryover effect may lead to invalid comparisons since it is typically less likely that the sighted subjects would have participated in the previous experiment. It is often difficult or impossible to avoid using blind children in repeated experiments, and it is the researcher's responsibility to be familiar with the "experimental history" of his subjects, to consider the possibilities of carryover effects, and to discuss such issues in his report.

### Statistical Considerations

Some statistical issues related to the analysis of self-selected variables were discussed earlier, and they need not be repeated here. Aside from these points, there is little in the statistical area for research on blind children that does not also apply to research with sighted children, and it is not within the intent or scope of this work to make an exhaustive treatment of these statistical issues. It remains only to point out that there are several statistical shortcomings that occur frequently enough in studies on the blind to warrant special mention. It is important to provide the reader with enough detail about the results of the research so that he can fully understand the pattern of results. Papers should simply not be accepted for publication without adequate descriptive statistics: mean scores are important but not sufficient, and they are often not useful at all without some information about the variability of the scores around the mean. In conducting tests of statistical significance, the researcher must be certain that the test selected is one that fits the nature of the data. As has been mentioned repeatedly, the samples with which researchers on the blind work tend to be heterogeneous, and the need for statistical expertise is correspondingly great. Few individuals are sufficiently sophisticated about statistics that they need not consult an expert from time to time.

### Training Studies

The need for studies of the effectiveness of training procedures is especially great in areas where substantial developmental lags occur for blind children. A word of caution is in order, though. The discovery of a developmental lag does not automatically call for the prescription of a remedial training program for those children who are old enough to show the lag, or a preventative training program for those children who do not yet show the lag. There may well be areas of development where it is to the blind child's advantage to proceed more slowly, or where it would be to his disadvantage to proceed more rapidly, even if effective training procedures were available. It might be, for example, that in order to produce an earlier "reaching to external objects" in blind infants than normally occurs, so much of the infant's time and energy would have to be devoted to the training procedures that other areas of development would have to suffer. It is not the purpose of this section to explore this issue in detail, but some mention of the issue seems important in order to maintain an adequate perspective on training studies.

In general, the purpose of a training study is to evaluate the effectiveness of intervention methods that are designed to accelerate the acquisition of a set of abilities or characteristics. As discussed here, the training notion is not a narrow one: it includes attempts to structure the child's environment in such a way as to avoid the occurrence of developmental delays, as well as attempts to provide remedial experiences. Whether training is regarded as the use of a specific set of instructional experiences or as the structuring of the child's environment in a particular way, careful assessment of training procedures is critical if the best possible job is to be done in providing the blind child with an environment that is maximally appropriate in allowing him to develop to his greatest potential.

The most basic requirement of studies designed to assess the effectiveness of training procedures is that a group of children who are exposed to the training must be compared to an initially comparable group that does not receive the training (i.e., the control group). The control group is necessary in order for the researcher to be able to attribute any improvement shown by the training group to the training procedures, rather than to maturation, general learning experience, or some other factor not related to the training itself. The only difference that should occur between the training group and the control group is the training itself. It is particularly important, in cases where improvement by the training group is assessed by comparison of performance on a posttest to that on a pretest given before the training, to administer the pretest to the control group as well, so that any improvement shown by the training group cannot simply be attributed to experience with the pretest itself. Often the control group will show a significant improvement from pre- to posttest. To the extent that such improvement occurs without training, any gain shown by the training group that is significantly greater than that shown by the control group may be attributed to the training procedures. Although it is sometimes possible to reduce the potential carryover effect of the pretest experience on the posttest results by using different versions of an evaluative test for the pre- and posttests, this method does not eliminate the need for a control group.

In order to conduct a useful evaluation of a training procedure, it is necessary to choose a test that adequately represents the abilities to which the training is oriented. At



**“Research and applications must be able to coexist. Applications are clearly needed because of the immediacy of the needs of blind children, children who exist now.”**

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the same time, though, the test should usually not include specific items that have been covered in the training procedures, since the goal of training is to produce a general rather than a specific improvement. It is often necessary to use a range of assessment measures in order to study adequately the generality of the training-related improvement. In particular, it is desirable to assess whether any improvement that occurs on a criterion test also generalizes to functional behaviors that are thought to depend on the ability being trained. Further, the effects of training procedures should be evaluated not only directly following the termination of the training phase, but also after some considerable delay, in order to determine whether any improvement is transient or relatively permanent.

The necessity for studying individual variations in performance that may be attributable to self-selected variables has already been discussed, but this point bears repeating with respect to training studies. Even if a significant improvement occurs for the training group as a whole, it is important to assess the degree of improvement shown by types of subjects in the training group. It may be that the particular training methods chosen are effective for subjects only with certain characteristics (e.g., who had a period of early vision before becoming blind). Such relationships may be discovered by the use of appropriate *post hoc* analyses. Training procedures often involve a substantial commitment not only of the time and resources of the trainer but also of the time and effort of the child who is being trained. Thus it is important to assess the extent to which the training procedures are effective for all children, or are effective only for children with certain characteristics.

**INDIVIDUALIZING PROCEDURES** Finally, a comment is in order about the individualization of training procedures. As noted in the preceding paragraph, certain training procedures may be effective for children with particular characteristics, while other training variations may be better suited to children with other characteristics. Ultimately, training techniques should be individualized in order to meet the needs of each child. Effective individualization is only possible in relatively refined training programs, however, and a great deal of caution must be exercised in building individualization of training into studies designed to evaluate the effectiveness of training. To the extent that the training procedures are varied from subject to subject, the researcher is constrained from making general statements about the effectiveness of any particular aspect of the training. There is a vitally important issue involved here, an issue of the relative emphasis on research and applications. Research and applications must be able to coexist. Applications are clearly needed because of the immediacy of the needs of blind children, children who exist now. For the sake of these children, we cannot afford to wait until an optimally effective set of intervention techniques is available. At the same time, though, research is needed on the

effectiveness of specific intervention techniques in order that optimal progress may be made in the refinement of those techniques.

The appropriate balance is difficult, if not impossible, to define in the abstract. It is my own impression, though, that training research with blind children has tended to be characterized by more attention to immediate applications and less to the development of optimally effective techniques. The attention to immediate applications may easily be justified by recourse to humanitarian concern for the children who are with us now. Blindness is not likely to be eliminated in the foreseeable future, however, and so a concern with the development of optimally effective techniques may just as easily be justified by an appeal to a humanitarian concern for the blind children of the future. Thus a balance is needed. An appropriate balance will be achieved only by investigators who are fully aware of the alternatives, and who are thus able on the basis of sophisticated evaluation to weigh one benefit against the other within the context of the nature of their own work.

**OBJECTIVE REPORTING** A note of perspective is needed on the way that researchers interpret their work and represent that work to others via their contributions to the blindness literature. The researcher-author is the person who is in the single best position with respect to providing interpretation of and perspective on his work to others in the field. As the occupant of that position, he incurs a most significant responsibility. He is absolutely obligated to provide an objective view of his work. That objectivity includes the enumeration and discussion of any alternative explanations to the one that he prefers. Too often (and this point by no means restricted to the blindness literature!) it is apparent that research has been conducted with the goal of providing support for a particular position, rather than of adding objectively to a system of knowledge. It is not difficult to understand the researcher's commitment to his own interpretation—he is often trained in or otherwise committed to a certain theoretical position, and at very least he has invested substantial energy and other personal resources in his work. This commitment, whatever its sources, does not constitute absolution from objectivity, however. The researcher's primary and overriding commitment is to the acquisition of knowledge, and knowledge in any meaningful sense goes well beyond the confines of any one individual's personal orientation, whether it be theoretical or otherwise.

### **“Basic” and “Applied” Research**

I should also like to contribute a word of perspective on the issue of “basic” versus “applied” research and their relationship to practice. The distinction between “basic” and “applied” research is one that should not and cannot be clearly drawn. “Applied” research is initiated with the goal of providing an answer to an immediate problem. Such research should take its direction not just from the specific problem, but also from the wider set of issues and knowledge that bear on the problem. If the research is so directed, it should be effective in generating a solution to the immediate problem, and at the same time it should contribute effectively to the growth of the general system of knowledge. The breadth of direction point also applies to “basic” research. “Basic” research is not research that is conducted in a vacuum. Rather, it is research that is done with the primary goal of contributing to the general system of knowledge, without being constrained by the nature of an applied



problem that needs a solution. Such research, insofar as it does add to the general system of knowledge, will necessarily add to the potential of the field to provide answers to applied problems, present and future. Thus it is important for "applied" research to be designed and conducted with a basis in the general system of knowledge. It is equally important for "basic" research to be done by researchers who are aware of and have a healthy respect for the immediate and potential problems of the field.

### **Effective Solutions Come from Knowledge**

The success of the practitioner is critically dependent on the adequacy of the knowledge that he has at his disposal. Effective solutions to problems simply cannot be generated without a basis in a system of factual knowledge. We may hope that some number of years in the future, a complete system of knowledge about visual impairment will be available that will allow an effective answer to be given to any applied question. Such a system is not available now, and it will not arrive in the near future. For the present, then, we will continue to need research that is directed to specific applied questions. But at the same time, we cannot afford to lose sight of the goal of the complete system of knowledge, and so "basic" research must continue. Both types of research orientation are important, and neither should be allowed to overwhelm the other. It is my impression, from reading the recent literature and speaking with many people who are now doing research with the blind, that there has been a shift toward an overriding concern with research that will generate immediate applications, and away from a concern for research that will contribute to the general system of knowledge. Further, it is my impression that the responsibility for this shift lies not with the people who do the research but with those who control the resources that are available for research. The support that is available for non-applied research is insufficient, and it is apparently decreasing. This is a most unfortunate trend, and it must be reversed. Resources must be made available for research that will contribute to the generation of a system of knowledge, or else the potential of the field for generating solutions to present and future problems will wither.

### **A Research Model for the Future**

In a preceding paper (*New Outlook*, January, 1976), three themes were identified that recurred in the summary of research needs. In the first part of the present paper, it was noted that much of the research with blind children has been conducted within models that have been borrowed from research with sighted children, and that these models may not be ideally suited for research with the blind. In this section, I would like to propose a research model that I think will allow effective attention to the three themes as well as to some of the difficulties discussed in the present chapter. The model may be characterized as a hierarchical model. Most briefly, the principle behind the model may be stated as follows: research on a characteristic should not involve only evaluation of that characteristic but should also include attention both to the etiology of the characteristic and to the ways in which the characteristic is expressed in real-life behavior. Some examples may help to clarify the principle. The study of a cognitive ability (e.g., a classification skill) should not just measure that ability. It should include evaluation of present and past factors that might produce variations in the ability (e.g., contributing sensory and perceptual factors, characteristics of the learning environment, etc.), and it should include evaluation of the ways in which

the ability is expressed in the child's behavior (e.g., his ability to understand his world, his performance in certain school demands, etc.). If some aspect of tactual perception (e.g., form discrimination) is studied with the goal of using the ability in a functional behavior such as map use for mobility, then the research should not stop at evaluating the tactual ability. It should evaluate variables that may contribute to the tactual ability (e.g., fingertip sensitivity, memory for sequentially scanned items, and experiential factors on which these component abilities may depend), and it should evaluate the ability of the subjects to translate the tactual skill into the functional behavior of map use. The study of personality characteristics should not stop at simple evaluation of the characteristics. It should include attempts to identify those factors that may have led to individual variation in the characteristics, and it should assess the relative advantages or disadvantages that the characteristics confer on the subjects in adapting to various real-world situations in which the characteristics may play a part.

### **A Hierarchical Format**

The hierarchical research format is not as easy to design, conduct, analyze, or interpret as is the more simple format that has primarily been used in research on handicapped as well as non-handicapped populations. It is necessary to spend more time with the subjects, to use more imagination in designing ways of gathering data and assessing possible relationships, and in general to handle many more variables in any given study. Perhaps the most severe stumbling block at the present time is the relative unavailability of methods for studying etiological factors and intensive research effort should be devoted to the development of such methods. The research design and data analytic requirements present no great problem: multivariate research design and data analysis have become increasingly popular, useful, and sophisticated. The potential advantages of this research format are immense and well worth the additional difficulties. Multivariate approaches are far better suited to the evaluation of individual differences than are univariate approaches. Use of the hierarchical model would constitute a major step toward providing the structure that is needed for the integration of findings in various areas of the blindness literature. And finally, the inclusion of the level of functional behaviors would serve to keep researchers oriented to important problem areas.

**REMAINING PROBLEMS** There are two major remaining problems that cannot be solved solely by the use of the hierarchical model for research. One problem is the need for the coordinated study of the various areas of development such as perceptual, cognitive, language, social and personality development. For the most part, any given piece of research has been concentrated on one area of development or another, without consideration of how the results contribute to a total picture of development. (There are some exceptions to this generality—the extensive longitudinal study by Norris, Spaulding, and Brodie is one, and the set of relatively intensive, long-term case studies of Fraiberg and her colleagues is another. The intensive case study approach has typically used very few subjects and can therefore not reliably be taken as providing normative information about development. The Norris et al. study was concerned primarily with RLF children and is therefore not optimally appropriate to today's blind children.) The second problem is that because of the extreme heterogeneity of the blind population, the sample chosen for any given piece of research may



be a quite nonrepresentative one. If the researcher knew to what extent and in what ways his sample was nonrepresentative, he could provide appropriate qualification of his results. The potential contradictions between different studies using different samples might be kept in appropriate perspective. At present, though, most researchers have no way of assessing the representativeness of their samples, and thus the generalizability of their results is unknown.

### **Proposal for A Major Research Effort**

I would like to propose a major coordinated research effort that would allow these two important problems to be solved, and that would, if its component projects were conducted within the hierarchical model discussed earlier, provide for the collection of research data that would contribute to a much more complete and useful picture of the development of the blind child than is now available. Most basically, the intent of the coordinated effort is to gather various categories of information about a large number of blind children, so that the particular sample that is available to any given researcher may be compared to a large population whose important characteristics are known. The categories of important information are the following:

(1) Description of the environment. Key characteristics of various aspects of the child's environment should be assessed, including the sensory, learning, language, and social aspects. In each of these areas, the environment should be evaluated and quantified in general but useful ways. Attention should be devoted not only to the child's current environment, but also to any major environmental changes that may have occurred in the past.

(2) Self-selected status characteristics. Information about the most important self-selected characteristics of the children would be gathered. The most important of these variables, as discussed earlier, are sex, IQ (or learning aptitude), residual vision, and etiology of blindness. Two additional variables are also important but change over time, CA and duration of blindness.

(3) Acquired characteristics and abilities. A small number of indicators should be chosen that may represent the child's acquired characteristics and abilities in a range of areas. These should include perceptual and perceptual-motor, cognitive, language, social, and personality characteristics. The purpose of the information in this category is to provide not a fully detailed profile of each child, but rather a "synopsis" of the child's important characteristics.

The availability of these types of information for large numbers of blind children would serve several purposes. The information from the first category, environmental description, would aid in the adequate treatment of the etiological aspects of research within the hierarchical model. That is, the researcher would be able to assess the extent to which the characteristics and abilities of the children in his sample can be accounted for by factors in the children's experiential histories. As was argued earlier, this level of analysis is critical in generating knowledge about the experiential determinants of development, and about implications for the effective structuring of the environment as well as effective attention to individual differences in development. The information in the third category, acquired characteristics and abilities, would allow the researcher to place his own research results into the perspective of a broad set of developmental characteristics of a large population of blind children. If a research study is directed to some aspect of cognitive development, for example, the detailed findings of the research with respect to cognitive development may be grounded within the total picture of the characteristics of the sample. Such a perspective would be of great benefit in helping to keep general developmental questions in mind, and in generating a system of knowledge about the "whole child." Most importantly, the information from the second category in particular, but also from the first and third categories, would allow the researcher to make well-based statements about the degree to which his sample is representative of the population of blind children. The availability of information about the population, as well as about each sample, would allow apparently discrepant results (or similar ones, for that matter) to be resolved or at least considered within a large and systematic framework.

If the researcher were committed to the goal of the generation of an integrated body of knowledge about blind children, he would take steps to gather these categories of information about his sample. He could then contribute that information to the growing pool of normative data about the population of blind children, and he would of course be able to make a careful assessment of the particular characteristics of his sample and of the degree to which it is representative of the general population of blind children. Most importantly, he would be able to interpret his own research results within the perspective of a systematized and growing body of information about blind children.

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## **"Career Education" Chinese Style**

Educators in the United States who are wrestling with the necessity of integrating career education into the existing elementary and high school curricula have reason to envy their counterparts in the People's Republic of China.

According to a dispatch from the *Toronto Globe and Mail*, the Chinese do not try to make learning about work a part of reading, writing and arithmetic. They simply put the students to work part of the time.

Since the Cultural Revolution, many Chinese Middle

(secondary) schools have developed programs whereby all students are assigned to workshops one month out of the school year. They work six hours a day for four and a half days per week, and spend another day and a half per week on lessons and essay writing related to the work.

Middle school students are producing such items as oil filter cores for tractors and relay switches for vehicle warning lights. Some of the work is done by hand and some by machinery purchased by the schools. The students receive no pay for the work. The profits—and there are profits—are placed in bank accounts so that the money is available to the state.



# Increasing the Accessibility of Hands-On Science for Blind Students

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■ During the last ten years, the direction of elementary science teaching has moved from an emphasis on text-oriented materials to a hands-on, concrete experience approach. This evolution in science education has resulted in the development of many new curricula (e.g., Science Curriculum Improvement Study—SCIS, Elementary Science Study—ESS, and Science: A Process Approach—SAPA). These innovative programs are thought to be superior to traditional curricula because they offer the student extensive interaction with his environment, an essential ingredient for the development of the student's logical thinking ability (Piaget, 1970).

The concrete experiences offered by these curricula are even more important to the visually handicapped student because he often lags behind his sighted peers in relevant experiences that are important to his cognitive development. Linn and Peterson (1973) showed that young, visually impaired children do not perform as well as sighted children on tests of logical reasoning. Brothers (1972) found similar results for arithmetic computation. In some cases, the lack of basic experiences has reached a level that blind young adults are unable to perform the daily living tasks necessary for independent living (Hatlen & LeDuc, 1974). There is an obvious need for the widespread use of science materials which allow the student to have extensive concrete experiences. Yet the ability of visually handicapped students to use the new curricula which offer these concrete experiences is limited by the fact that the activities rely heavily on the sense of sight. The student is too often forced to rely on vicarious experiences communicated by his sighted peers and on verbal abstractions, thus negating the advantages of these curricula.

**ADAPTING SCIENCE MATERIALS** A step in the right direction in giving visually handicapped students hands-on concrete experiences in science occurred with the adaptation of the innovative elementary science project, Science Curriculum Improvement Study (SCIS). This program, called Adapting Science Materials for the Blind (ASMB), adapted the SCIS materials so that visually handicapped and sighted students can work together with minimal assistance from the teacher (Thier, 1971).

More recently, the American Printing House for the Blind contracted with the Lawrence Hall of Science to develop science activities for upper-elementary level students which were not associated with a particular curriculum. It was considered desirable that these activities meet the individual needs of the visually handicapped student in relation to the nature of his cognitive style, verbal and manipulative skills, and attention span. To satisfy these requirements, the Lawrence Hall of Science staff determined that an appropriate design would be a set of activities which could be used individually (or linked together into modules for a more intensive program), and which would require a limited amount of teacher intervention.

This individualization of the activities was considered important because it would allow: 1) students to work on activities appropriate for their developmental level, an important trait for many classes of visually handicapped students where there is a high diversity in abilities; 2) students to develop independence in working with equipment and various scientific concepts; 3) teaching flexibility by giving the teacher freedom to work with other students at the same time a student is personally doing the activity; and 4) the material to be incorporated into a teacher's science program at a point that best suits his own teaching style and curriculum.

**Abstract:** *The Adapting Science Materials for the Blind (ASMB) project has developed a number of individualized sets of science activities and experiments for upper-elementary level visually handicapped students. Working independently or in small groups, students are able to learn fundamental scientific principles and the basics of the scientific method using the hands-on approach. The ASMB materials are tested in actual classroom situations and then refined further.*



# Hands-on Science

The ability of the Lawrence Hall of Science to develop appropriate individualized material for the visually handicapped has been enhanced by the on-going research (started in 1972) concerning individualized science activities for sighted students (Linn & Thier, 1975). This background has been invaluable in identifying specific activities, instructional schemes, and formats which work effectively.

Each activity introduces a fundamental concept in science and has the student perform one or more experiments to familiarize himself with the materials in the activity and the procedures necessary to obtain results. An example of one activity is "Hello Heart."

## **An Individual Science Activity—"Hello Heart"**

"Activity: Find out if the time it takes your heart to beat 15 times is longer or shorter than for a person who is taller than you." Following the activity statement is a list of materials supplied for use in the activity. In "Hello Heart," a stethoscope and large braille-faced clock are supplied (see Figure 1). The students are given simple instructions on the use of

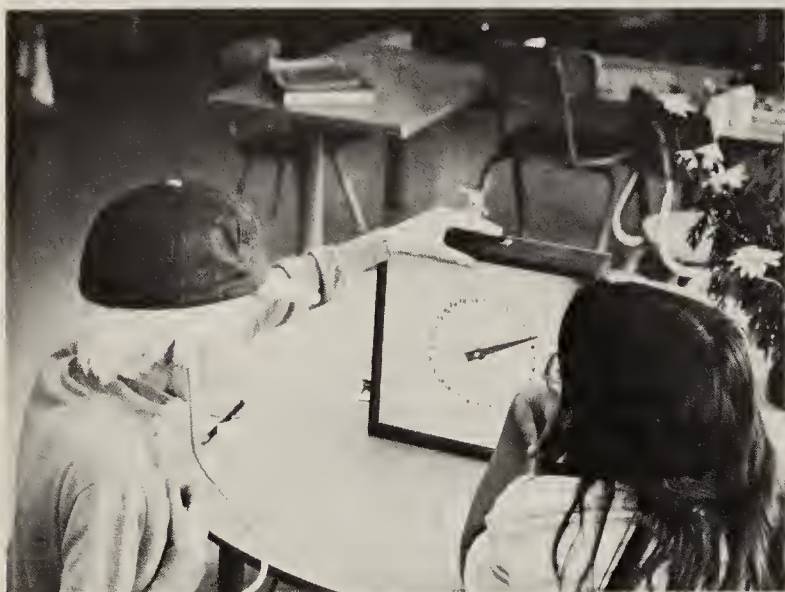


Figure 1. Two students perform the activity "Hello Heart."

Figure 2. A student uses the materials developed for the activity "Absorption."





the equipment and then directions to complete the activity. Throughout the activity, the student is asked questions that focus on important concepts and scientific processes. In "Hello Heart," the student is told what is meant by "variable" and which variable was selected to be changed in the activity (height). The student is asked what other variables were different between the people tested in his experiment. In this way the student is encouraged to think about the differences between people and how this might affect their heart rate.

After completion of the activity, the student is challenged to carry out further experiments using the same equipment, but without directions on how to accomplish the challenge. An example of a challenge from "Hello Heart" is: "Challenge 3: Find out if an animal's heartbeat is faster, slower, or the same as yours." The challenges reinforce both the scientific concepts and the processes discussed in the activity. "Hello Heart" is an activity that emphasizes identification and manipulation of variables, and how these variables are applied in relation to a person's or other animal's heartbeat.

**TEACHING SCIENTIFIC CONCEPTS** Other activities focus on other scientific concepts, and on other aspects of scientific processes, like setting up a controlled experiment. "Absorption" is such an activity: "Find out if newspaper or blotter paper absorbs water faster." In the activity, the student is told that in order to determine the effect of one variable, all others must be kept the same. He is then asked to list those variables that should remain constant and which variables he will change. Solving the challenges at the end of the activity involves setting up a controlled experiment (see Figure 2).

Associated with each activity is a "Comments for the Teacher" sheet giving the following information for each activity: 1) the educational objectives; 2) definition of terms; 3) directions for setting up materials; 4) a list of problems the students may encounter with the activity; 5) some possible solutions to the challenges; and 6) a suggested order, if any, for presenting each activity to the student. Most importantly, there are suggestions on how the activity topic can be expanded beyond the challenges at the end of the activity. In "Absorption," students can have a "liquid race" where they vie to see who can set up their equipment to absorb liquid the fastest. This can lead to discussions of the difficulties in cleaning up oil spills and how one might go about doing it.

Each activity goes through an elaborate development procedure of matching the student's abilities and interest to the activity design. This process involves preliminary analysis and criticism of the activities by the Lawrence Hall of Science staff, followed by material testing in actual classroom situations. Teachers are asked to use the materials in any manner they desire and to fill out forms concerning the students' use of the materials. The students are also asked several questions which evaluate the affective and cognitive effectiveness of the activities. Most importantly, the development staff observes the materials in use under actual teaching conditions. Any necessary changes in the activities are made promptly and the results tested again in the classroom. The final products from such a development procedure are then activities which at least have been successful in the classroom.

**CLASSROOM TESTING** Each activity was tested in several different settings. Ross Huckins, the science specialist at the California School for the Blind, used the materials

in his regular classes. Five to seven students would each work on a different activity, while he interacted individually with students. Julie Pierce, a resource room teacher at Proctor School in Castro Valley, California, set up a science corner in her classroom. She had each activity on tape, and the students worked on an experiment independently, only coming to her when they had a question. Ms. Pierce usually followed up the activity with some questions to determine how they liked the experiment and to find out what they learned. In several activities, her students brought in material or took some of the equipment home to expand on the topic being discussed. This was also true of Phil Mangold's class at Earl Warren Jr. High in Castro Valley, where the activities were used to encourage language development for two of his students with reading difficulties.

To date, only a limited number of individualized science activities have been developed. Many additional activities must be developed to cover the scientific concepts and processes which should be included in a comprehensive program designed to give visually handicapped students extensive experience with their environment and make accessible to them materials on a par with their sighted peers.

### More Concept Areas Need Adaptation

Many concepts will be readily adaptable, such as those dealing with sound, where the only modification may be braille labeling and supplying readily available special equipment to measure the length of a string or the amount of water in a bottle. Other concept areas will require greater adaptation. The Lawrence Hall of Science staff has developed a simple, inexpensive light sensor which produces an audio output whose frequency varies with the intensity of light falling on the sensor. This simple device makes the study of light and its properties easily accessible to the blind person. It also allows the blind student to perform experiments in the study of solutions which require detecting the change in color of a solution. Without the light sensor, this experiment could not be performed.

A start has been made in making concrete experiences in science available to the visually handicapped student. It is reasonable to assume that with the appropriate support, we will be able to develop a complete, personalized program of hands-on science activities for the visually handicapped student.

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# Adjustment to Blindness

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■ One of the most pressing questions which arises from the results of research into mobility aids at Nottingham is "what are the effects of an improvement in the mobility of a blind person on other aspects of adjustment?". It is the suggestion of this paper that a search for possible effects is needed as a complementary part of any comprehensive evaluation of a mobility aid. I want to examine, therefore, how a definition of adjustment might be reached. I intend to review the work of others in this respect, while suggesting that one area of adjustment has been neglected.

Adjustment to blindness has been customarily defined as a coming to terms with the disability. This is convenient to mobility theorists, but it is sidestepping the issues of measurement to be considered by the implementation of something which will change aspects of adjustment. And, first of all, systematic consideration of the problem of how we can measure adjustment to blindness is necessary.

The word "adjustment" derives from the Latin prepositions "ad" and "juxta," and the Late Latin verb "adjuxture" which means "to bring together." This meaning of 'adjust' is probably best reflected literally in the American idiom of "getting it together." To the psychologist, however, concerned with measuring adjustment, the problems of definition are numerous. Adjustment is not a tangible thing, it is a hypothetical construct (Deutsch, 1960)—a general concept which refers to several specific behavior patterns and their relationships. In this sense, it is much like other psychological constructs, such as intelligence. They are all abstractions from behavior. The psychologist who is seeking valid generalizations must study constructs which are broad and unspecific; or in a statistical sense, those that account for the maximum assessable variance in the population.

## ADJUSTMENT INCLUDES MANY CONCEPTS

This is the prime importance of adjustment, that it is a very broad concept, conceived of as being involved in every kind of psychological adaptation. But to be of any practical use two other conditions must be fulfilled. First, to ensure statistical validity, the concept must embrace many different behaviors which can be shown to have common features, that is, those which are correlated and not independent. Second, for the concept to be really valuable, it should have more than purely statistical support, and be more than mere abstraction from correlated performances. Its unity should be demonstrably functional and psychological, not just mathematical and logical. To show that adjustment is a satisfactory unitary concept in this sense, one should be able to point to its integrating function in the individual as well as to its emergence as a statistical factor averaged over a large number of people.

Statistical validity can be achieved by constructing a test with technical skill. For example, one can assemble a large number of statements relating to blindness, its problems, daily living skills, etc., which are believed to be highly correlated with adjustment. By comparing these with other measures such as personality scores or judgements of trainers, mobility instructors, etc., one can then retain the combination of struts that accounts for the largest proportion of the variance in order to predict adjustment. This can be achieved by using factor analytic techniques or multiple correlation methods. In this way, with sufficient technical skill, an operational definition is realized. This would be "adjustment is what our test (of correlated and weighted statements) measures." But the second condition of making the concept psychologically meaningful has to be fulfilled.

**Abstract:** *The article examines various factors that can or should be used to determine adjustment to a disability such as blindness and discusses the need for developing ways to accurately measure the process. Emphasizes that adjustment is a broad concept that embraces many, such as self-concept, nature of blindness, attitudes of significant others. It is suggested that self-concept or self-esteem is the central concern but is neglected.*



This presents further problems which require more than technical skill to solve.

The first problem is that the word adjustment is "value-laden." If we construct a scale of adjustment, then there is an inevitable tendency to see one end of the scale as high, and the other as low, to describe in favorable terms anyone believed to deviate towards one pole, and to denigrate someone nearer the other. In the construction of such measures, who is to decide what makes a well adjusted blind person?

Chevigny & Braverman (1950) note that a great deal of effort is directed by agencies for the blind, toward maneuvering the blind person into a pattern of adjustment that conforms to the sighted world's notions of appropriate blind behavior. More recently, Scott (1969) in a major study on agencies and their effect on the blind, goes further, suggesting "The disability of blindness is a learned social role" (p. 14). If the blind person does not conform to this role then he is maladjusted.

A major problem of definition now emerges. Does adjustment to blindness mean coming to terms with being blind in a sighted world and acting in a way expected of the stereotyped blind, or does it mean trying as far as possible to act as a normal sighted person does? Also, will either of these definitions be adequate for all blind people? There is no assurance that those behavior patterns which are construed as being "adjusted" by one blind person will be considered so by others. Mere statistical validation of the concept will lead, however, to a situation where "good" adjustment is conceived of as some single, standard test score, without all of the unique reasons for that score being taken into account. Any comprehensive assessment of adjustment must not be misled into pursuing the notion that it is a single, generalizable trait. A definition of adjustment must incorporate the views of the individual. In constructing and statistically validating a measure which does not take this into account, the essence of adjustment is being ignored.

**SELF CONCEPT AND ADJUSTMENT** Adjustment to blindness is partly how society (through the eyes of agencies, psychiatrists, or therapists) views a person's behavior, but it is also partly how the blind person views his own behavior. In the next section, the self concept as an important factor in adjustment is discussed and it is suggested that measuring adjustment without taking the self concept into account is misleading. For example, if we take a measure such as travel dependency (as Lukoff & Whiteman, 1962, have done) and suggest that the independent blind are well adjusted, then many important variables which may affect the psychological validity of such a statement have been ignored. The blind person may, for example, be travel dependent because he is affluent enough to afford a chauffeur-driven car, though this would not ordinarily mean he was maladjusted. A measure of the blind person's self concept with regard to adjustment should be an integral part of any measuring procedure. Most studies ask about the attitudes of the blind person, but not how he would like to be. Measures of adjustment, though, would fulfill the second condition, stated above, if they included an autonomous evaluation and did not just try to fit the blind person into a predetermined role.

There have been many research studies claiming to measure adjustment to blindness, which are reviewed fully elsewhere (Bauman & Yoder, 1966; Pringle, 1964; Cowen et al., 1961) but few studies have tackled the problem of defining adjustment to blindness in a psychologically meaningful way. Many studies have not tackled adjustment other

than by correlating it with one single variable. Meyerson (1953) examining 15 studies, points out that in all of them the instruments and methodology are open to grave question. Often forgotten is the fact that adjustment in blind persons might not be the same as adjustment in the sighted. A point noted in their review by Bauman & Yoder (1966) "inventories designed for seeing persons were used and the general assumption seems to have been that adjustment to blindness consists of a blind individual saying . . . exactly what a seeing person says about his problems" (p. 37). So many studies still claim changes (or no changes) in adjustment with only single measures, which seem highly irrelevant, such as a 'sighted' neuroticism scale (Bottrill, 1968; Klick & Wierig, 1971; Thume & Murphree, 1961). There are, however, some studies which have developed relevant and interesting measures of adjustment to blindness. Table 1 (see page 66) shows the areas that several of these have considered important. These studies are those usually pointed out by reviewers as the most useful carried out so far in this area. In the following section some of these studies are considered together with an examination of how adjustment to blindness as a concept has changed its meaning.

### Adjustment to Blindness Studies

For many years it has been considered by some (cf. Twersky, 1955) that the nature of a physical disability directly shapes adjustment to that disability and the consequent personality of the afflicted individual. It was also thought that physical disability, per se, was a sufficient cause of maladjustment in an individual (cf. Shontz, 1970). In the case of blindness, this would mean that the nature of the sensory deprivation was responsible for the nature of the adjustment. In many respects, this is an 'organic' or 'medical' approach, the suggestion being that the greater the physical damage, the greater the psychological damage. As such, the approach seems to be most appealing to psychiatric workers who have postulated a "loss model" (Fitzgerald, 1970). This model lists the losses of all those who are blind, and suggests psychological processes which must be accomplished for recovery. The widest read exponent of such a view was Father Thomas Carroll (1961). Cholden, (1954) has, for example, written that depression is a necessary process through which the newly blind must go in order to adjust, "... (he) must die as a sighted person in order to be reborn as a blind man" (p. 110). Blank (1957) suggests that a three stage process of depersonalization, depression, and recovery is the typical reaction.

**NATURE OF BLINDNESS AND ADJUSTMENT** However, in the past few decades, there has been a concerted attack on these notions. Social psychologists have been suggesting that it is not the nature of the disability, but the reaction of other people to the disability that is important to adjustment. Moreover, the proposal that specific types of personality are caused by physical disabilities has been strongly refuted (Barker, Wright & Gonick, 1946; Lowenfeld, 1953; Meyerson, 1957). These workers suggest that the social disabilities associated with handicap are much more important determinants of the sort of adjustment that takes place. Bauman (1954) in examining this controversy, looked at two characteristics of blindness—the age of onset and the degree of visual loss. These two variables are most often cited as being relevant to the argument that the nature of blindness is a major determinant of adjustment. However, she found no correlation between the two variables and adjustment.

# Adjustment

Similarly, Greenberg & Jordan (1957) in exploring the differential effects of total blindness and partial sight on personality traits, found no significant differences between these two types of visual handicap. In reviewing 123 books and articles on the emotional and social adjustment of blind children, Pringle (1964) suggests that "the effect which the handicap has on the relationship between parents and child determines to a large extent the latter's adjustment to it . . . emotional crippling can be more serious than a physical disability" (p. 10). Similarly, Lukoff & Whiteman (1971) conclude their review on research thus, "these studies all support the view that the blind are not handicapped simply because of their limited ability to perform certain tasks. (The adjustment) is a response to the attitudes and expectations of the sighted majority" (p. 28).

**ATTITUDES OF SIGNIFICANT OTHERS** The suggestion that the attitudes of 'significant others' towards the disability is relevant to adjustment is not new. Helen Keller has said, "Not blindness, but the attitude of the seeing to the blind is the hardest burden to bear." Early studies on sighted attitudes to the blind seem to suggest that there was a unitary attitude dimension which might be discoverable (Villey, 1930; Simmons, 1949). But, two more recent studies (Lukoff & Whiteman, 1963; Siller, Ferguson, Van & Holland, 1967) have shown that sighted attitudes are neither consistent nor pervasive. The stereotyped responses noted by the blind themselves (Chevigny & Braverman, 1950; Cutsforth, 1951) are not as persistent and homogeneous as was first assumed. Also, MacDonald & Hale (1969) have pointed out that evidence of consistency in attitudes of others toward people with disabilities does not tell us anything about the attitudes of the disabled themselves. An important point to note here is that if some blind people assume that stereotypes are universal, it may substantially influence

**TABLE 1**

*Areas of Adjustment to Blindness Measured by Several Studies.*

<i>Fitting (1954)</i>	<i>Bauman (1954)</i>	<i>Zarlock (1961)</i>	<i>Lukoff and Whiteman (1962)</i>	<i>Sommers (1944)</i>
1. Morale	1. Sensitivity	1. Employment	1. Employment	1. Compensatory behavior
2. Attitude towards sighted people	2. Somatic symptoms	2. Travel	2. Travel independence	2. Denial reactions
3. Outlook on blindness	3. Social competency	3. Indoor orientation	3. Independence in eating	3. Defensive behavior
4. Family relationships	4. Attitudes of distrust or paranoid tendencies	4. Socialization	4. Independence in shopping	4. Withdrawal
5. Attitude toward training	5. Feelings of inadequacy	5. Communication		5. Non-adjustive behavior
6. Occupational outlook	6. Depression	6. Recreation		
	7. Attitude to blindness	7. Eating problems		
		8. Dressing problems		
		9. Business problems		
		10. Physical hygiene		



their adjustment. Moreover, Siller, Chipman, Van & Ferguson (1967) note that "in the newly disabled, negative attitudes previously focused on members of a devalued out-group may refocus on the self with devastating results" (p. 5).

This aspect of social adjustment to blindness—self-esteem and self-evaluation—seems to be a highly important aspect of the problem, but one which has been largely ignored. This is surprising, since in other areas of disability, particularly mental disorder, the effects on adjustment of changes in self-esteem have been considerable, (Rogers, 1959). Yet Lukoff & Whiteman (1971) in their monograph *The Social Sources of Adjustment to Blindness*, barely mention self-evaluation. In fact, only a few studies exist which have looked at self-esteem and blindness at all and these have all concentrated on differences between blind and sighted children. The self-concept is considered to be highly important to personality and adjustment by most personality theorists. The sentiment expressed by Snygg & Combs (1949) that "the defense of the phenomenal self is the most pressing, most crucial if not the only task of existence" (p. 7) has been re-echoed by many others. If we accept that the self-concept is a significant factor of adjustment, then there is a need for research into its interaction with adjustment to blindness.

**ADJUSTMENT AND SELF-ESTEEM** I have already noted several times that self-esteem is an important aspect of adjustment to disability. This is not an original view. Many psychologists have considered that the self-concept affects how the individual perceives his environment. Wright (1960) discusses in detail the effect of disability on the self-concept. A disability can threaten self-esteem to the extent that the individual is unable to contain the "spread effect," that is, the feeling that he is totally incapacitated even though only one aspect of his functioning is in fact affected.

Very recently Welsh (1972) has suggested that the self-concept is the critical feature altered in blind mobility training, "his self-concept as a visually handicapped person will be inaccurately low compared to what he can realistically accomplish without vision . . . those of us who teach mobility feel that our service makes a definite improvement in the individual's self-confidence, and we feel that, indeed such an improvement is an essential element if the client is someday going to transfer his mobility skills to a new area" (p. 100). If Welsh's suggestion, that mobility training significantly enhances self-esteem are true, then this has interesting implications for the role of mobility training in adjustment courses.

### Manipulation of Self-Esteem and Adjustment

The central position of self-esteem in the adjustment process has been noted by Rogers (1959) in his work with psychologically disturbed clients. Rogers sees increasing self-esteem as a goal of therapy and considers there to be a close link between good adjustment and high self-esteem. Because self-esteem is important in adjustment to blindness, training courses which manipulate self-esteem change the level of adjustment of blind people.

To summarize then, six conclusions can be drawn from this review:

1. There are many aspects of adjustment to blindness, both social and physical.
2. Adjustment is not simply a function of the nature of the sensory loss. Many individuals (with varying degrees of

vision and at varying ages of onset) adjust to blindness in different ways.

3. Blindness does not cause a specific psychological reaction or personality change, nor is blindness, per se, a sufficient explanation for maladjustment.
4. Adjustment is affected not only by the disability but also by the attitudes and expectations of the blind person and "significant others." The final adjustment will be a result of the interplay between the blind person's ability to perform certain tasks and these attitudes and expectations.
5. Most studies of the social adjustment process so far have been concerned with the role of significant others or with variables unrelated to the individual. This has meant that the attitudes of the blind person towards himself have been largely ignored.
6. Self-esteem is of central concern because of its dominant but neglected influence on the adjustment process. Adjustment to blindness can be precipitated by training courses which either intentionally, or not, increase the individual's self-esteem.

With these points in mind attempts have been made (Delafield, 1974) and are being made in Nottingham to examine the effects on self-esteem of various types of training and assessment courses and to develop a meaningful, reliable and valid measure of adjustment to blindness.

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## Opening Up Science Careers to The Handicapped

The American Association for the Advancement of Science (AAAS) is requesting that handicapped persons who are, or are interested in becoming, scientists or engineers participate in its new Project for the Handicapped in Science. The purpose of this project, which has been funded by the Rehabilitation Services Administration of the U.S. Department of Health, Education and Welfare through the George Washington University Rehabilitation Research and Training Center, is to identify and explore barriers that obstruct the participation of physically handicapped persons in education and careers in science.

The Goals of this project of the AAAS Office of Opportunities in Science are: increased awareness on the part of professional science societies and organizations of and for the handicapped of the problems of physically disabled individuals in science; more participation by the handicapped in the activities of science associations; establishment of a network to link the science community to organizations of and for the handicapped in order to remove employment barriers; changes in educational and employment policies concerning the handicapped; the development of a national resource center for information on educational opportunities, employment trends and needs; legislation, etc.

Since early 1974 the AAAS has been working with physically handicapped scientists and engineers to develop the initial phase of the project which will concentrate on ways in which scientific professional associations can contribute to equal educational and occupational opportunities for handicapped individuals in science and engineering.

### How Professional Societies Can Help

The three aspects of the overall problem that seem particularly appropriate for professional scientific associations to address themselves to are: handicapped scientists too often find meetings of their professional associations inaccessible, thus preventing them from participating fully; there is a general lack of awareness on the part of profes-

sional organizations to the problems of handicapped scientists; barriers to the acquisition of education and jobs are real.

The project will use three methods to attempt to overcome or alleviate the problems identified: the development, testing, and dissemination of methods to overcome physical and communication barriers that prevent physically handicapped persons from participating in professional meetings; the development and testing of methods of increasing the awareness of all U.S. scientific professional groups of the education and employment needs of disabled members; development of programs through which the AAAS and other scientific societies might enhance educational opportunity and equality for the physically handicapped.

### Improving Accessibility

Among the specific activities already planned by the project staff and advisory group are:

1. Accessibility of the 1976 AAAS Annual Meeting (Boston, February 18-24) to the physically handicapped and publication of a professional meetings accessibility guide for distribution to AAAS affiliate societies and academies and hotels in major convention cities.
2. Specific programs at the AAAS Annual Meeting to focus the attention of the science community on the handicapped. For example, a symposium entitled, "Science, Technology and the Handicapped," and a special information center and exhibits on the handicapped in science.
3. Handicapped scientists are being asked to identify themselves in order to guide future programs, assist in dissemination of information, and form a support system for handicapped students and peers.
4. A survey of the various organizations and government agencies of and for the handicapped and professional scientific associations which will elicit suggestions about ways in which existing barriers might be eliminated.
5. Dissemination of information to the general public and to scientists about legislation for the handicapped and project activities.

Persons interested in getting more information about this project or offering input to it should contact Martha Redden, director, Project on the Handicapped in Science, American Association for the Advancement of Science, 1776 Massachusetts Avenue, N.W., Washington, D.C. 20036.



# The Role of the Social Worker in a Rehabilitation Center for the Visually Handicapped

**RAYMOND BLAKESLEE**

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■ An effective rehabilitation program at a center for the blind attempts to combine all of the crucial components of rehabilitation in a manner that will ensure continuity of care and services. Such a program should provide for a full range of services—mobility, activities for daily living, braille, manual skills, etc.—and benefits combined with guidance and training which will insure an optimum level of adjustment for both the visually handicapped person *and his family*.

People vary in their abilities to cope with the problems presented by the loss or reduction of vision, and without experienced help in a protected setting such as a rehabilitation center, satisfactory adjustment may be difficult. The visually handicapped person needs to be able to make and correct mistakes with a *minimum* of frustration, embarrassment, and physical or mental injury. He needs to experience “success” in dealing with his problems. A reasonable degree of consistency in mastering progressive successful accomplishments leads to higher levels of functioning in the future. As the person becomes more competent, he realizes that he has the ability and responsibility to direct the life ahead of him.

Many rehabilitative centers utilize the “team” approach in evaluation, program planning, specific services, and follow-up procedures and services. The basic and long-range needs of a prospective recipient of services are evaluated by the staff at the center, and a program is then planned to meet these needs as a result of the conclusions and opinions of various staff personnel. Although the social worker is an integral member of the team, his role often seems ambiguous and undefined to both the staff and students in various programs. How does the social worker’s role in helping to rehabilitate a visually handicapped person differ from that of the instructional staff members?

Casework, according to Swithen Bowers (1961), is “an art in which knowledge of the science of human relations and skill in relationship are used to mobilize capacities in the individual and resources in the community appropriate for better adjustment between a client and all or any part of his total environment.” In other words, when a person is given public assistance, medical care, physical and psychological rehabilitation services, vocational training, and placement in appropriate employment, it makes little difference who renders the casework service as long as the client is motivated to overcome feelings of worthlessness and to take positive action in his own adjustment and rehabilitation.

**REACTIONS TO VISUAL IMPAIRMENT** The social worker in a rehabilitation center for the visually handicapped must first and foremost *understand the problem* of losing one’s vision. Few people have the natural ability to understand and work effectively with persons who have sight loss. Many of the well-known authorities in the field of blind rehabilitation agree that there are considerations unique to blindness and severe visual impairment that are not included in the generic concepts applied to many other handicapping conditions.

Mr. Carrol Ault, chief of the V.A. Western Blind Rehabilitation Center, Menlo Park, California, states that there are many factors influencing the reaction patterns of the visually handicapped person and of his family, friends, and employers. These reaction patterns need to be evaluated and dealt with in terms that are meaningful to all concerned. Ault further states that although there are individual differences in how persons react to irreversible sight loss, there are some characteristic patterns: 1) The initial reaction is usually

**Abstract:** *The social worker in a rehabilitation center for the visually handicapped plays a vital role in helping the client to take full advantage of the services offered; however, this role is often imperfectly defined in planning programs. Problems and responsibilities faced by social workers are examined, and the functions of social workers in two agencies are presented.*



**“It is . . . the responsibility of the social worker to recognize and examine his own feelings toward blindness and toward the afflicted person, in order that his feelings may not hinder the working relationship.”**

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disbelief that this has happened or is happening. The person may seem bewildered or confused; 2) He may refuse or ignore any aid or counseling, and deny that he must learn to function as a person with this handicap; 3) He will frequently go through an episode of “shopping” throughout the medical profession in search of assurance that his sight can be restored; 4) After exhausting medical resources (and frequently his finances), he may resign himself to a state of inactivity and dependence, or he may randomly search for a meaningful occupation that will allow him to maintain or regain his status as a productive person (Ault, 1968). Social work intervention at any one of these stages of adjustment requires specialized knowledge and skills. The social worker in this type of agency needs to know also that basic personality patterns affect the manner in which the person adjusts to his sight loss. A basically dependent person may become more dependent and seem reluctant to give up the outside assistance necessitated by visual loss. An independent personality may react with unrealistic aspirations and personal hazard (e.g., in mobility). A person who is ashamed of his visual deficiency may attempt to hide it by isolating himself or by playing the part of clown or cynic to divert attention from his loss. Usually, a person left to his own devices will rely on himself rather than seek expert advice in finding a “satisfactory” way of life, and thus seldom understands his failure to adjust (Ault, 1968).

**REACTION PATTERNS OF FAMILY MEMBERS** The social worker also needs to be aware of the initial reaction patterns of sighted family members, close friends, and employers. These reactions may range from pity and overprotection at one extreme, to denial, mistrust, and rejection at the other. These “significant others” usually respond with bewilderment combined with uncertainty about the appropriate response to the situation. These responses from “significant others” and from the visually handicapped person himself seldom have any intrinsic rehabilitative value, but it is essential that the social worker consider them in working with the blind person and those of importance to him (Ault, 1968).

### **The Social Worker's Attitudes**

This writer feels it imperative for the social worker also to recognize and control his *own* ideas, attitudes, and feelings regarding blindness or severe visual impairment. Honesty with oneself on the part of the helping person is one of the characteristics which differentiate a professional relationship from conventional social intercourse (Hamilton, 1951). It is what Rogers (1958) has in mind when he speaks of the need for the helping person's words to match his own internal feelings (Ross, 1964). Dr. Louis Cholden, in A

*Psychiatrist Works With Blindness*, states that attitudes are contagious. The attitudes of the ophthalmologist, the braille teacher, the nurse, the social workers, and relatives affect the blind person in various ways and these attitudes can determine whether blindness is life or death (Cholden, 1958). It is therefore the responsibility of the social worker to recognize and examine his own feelings toward blindness and toward the afflicted person, in order that his feelings may not hinder the working relationship.

In a panel discussion on “The Value of Low Vision Aids,” Emilie Farnsworth states that while a social worker in a low-vision clinic traditionally works primarily with those patients who, for various reasons, seem unable to seek treatment, such patients are more often blocked by their feelings and fears about their condition or the treatment measures necessary than by material problems such as lack of money. These feelings vary according to whether the patient has lost good vision or is trying to improve poor vision, and also according to the patient's personality, his past experiences, his relationships with other people, and his hopes for the future. Such factors play a large part in producing good motivation in some clients and poor motivation in others. A good social worker who takes an interest in the visually handicapped person *as a person* can help also to motivate him by enabling him to express and understand his feelings, so he may ultimately be able to accept treatment.

### **The Social Worker's Function**

On a more overt, identifiable, perceivable basis, the role of the social worker in a rehabilitation center lies in several areas. Betty Feldman, social worker at the Foundation for the Junior Blind in Los Angeles, describes her responsibilities in the following manner (Feldman, personal communication, April 22, 1974); she contacts and interviews all potential clients referred from the Department of Vocational Rehabilitation, and visits the home (when feasible) to obtain background information on the family constellation, the client's needs and expectations and his medical history, and to acquaint the client with the Vocational Independence Program at the Foundation. (Many families do the talking for the clients, and so the impressions the social worker obtains from this initial visit, though important, may not reflect the real wants, needs, and desires of the client.) Ms. Feldman also directs a family night in which significant family members are invited to attend meetings at the Foundation, in order to learn about the VIP program and to express any concerns or ask any questions they may have about services offered or their own feelings about this handicap of blindness. Carrol Ault claims that decisions are usually not made by the client without consultation or discussion with other family members. The social worker must use his professional judgment as to when and how deeply family members should be involved in the interviews and subsequent decision making. The client's family is frequently as uninformed as himself as to what is or is not feasible or appropriate. Family attitudes can determine whether or not the blind person will seek or accept services.

**FAMILY INVOLVEMENT PROGRAM** At the Western Blind Rehabilitation Center in Menlo Park, California, a program was initiated in 1968 called the Family Involvement Program. Its main purpose is to allow family members to observe and participate and become involved in the learning process of the program. The social worker's role involves making first contact with the family, giving a brief,



general orientation to the program and assisting in the evaluation process (i.e., presenting sociological, educational, and basic medical background material at staff meetings) to determine the most effective program necessary for the visually handicapped person. Ault states that involving families in the rehabilitation process can have several advantages: "1) Unwarranted but understandable fears, doubts, and false perceptions are diminished through observation and discussion; 2) Positive attitudes and appropriate methods for dealing with problems are acquired through didactic participation and counseling; and 3) Realistic planning for the future is developed through the combined knowledge and efforts of the blind veteran, family members, center staff, and representatives for the Veterans Administration (Ault, 1968).

**COORDINATION OF SERVICES** According to Ms. Feldman, the social worker also serves as a consultant to teachers and other staff members when personal or social problems interfere with learning or vocational planning. She serves as a consultant to the visually handicapped client in areas relating to his social and personal functioning. Sometimes, she says, the goals are rather narrow (such as helping a client pursue various interests or hobbies) or broader in scope, relating to individual growth or emotional problems. Such paper work as written reports, scheduling of evaluations, enrollment dates, etc., form an important part of the role of the social workers.

### Developing a Well-Rounded Program

Ms. Feldman relates that she also expresses input and contributes feedback at staff meetings regarding clients' needs and interpretation of background material such as family and peer relationships, motivation, areas of interest, any previous educational and vocational training, etc. This information is important to assist the staff in gaining a total picture of the client which will assist them in developing a well-rounded program for this individual.

She further states that she assists clients in apartment hunting, both for enrolled students and as a follow-up service for those clients who have finished the program. Carol Ault's role in this particular situation is to make living and transportation arrangements for family members participating in the Family Involvement Program, and to make the necessary financial arrangements.

The role of the social worker in a rehabilitation center for the blind and visually handicapped involves coordination of services necessary to complete the total program for the client. From the time visual loss occurs, whether it be total blindness or severe visual impairment, the visually handicapped person needs accurate information presented to him in a form that is acceptable and understandable. He needs time to evaluate and relate information to his own unique situation. In order for him to make sound decisions, he needs alternatives from which to select, and it is the implications of these alternatives which must be jointly explored by the social worker and the client. Even after the visually handicapped person has decided which course of action he will follow, he frequently drifts into a state of inactivity; his motivation seems to have dwindled, or he provides excuses for not following through on commitments or plans. For a client with experience, Ault states, it is a relatively simple task to pick up the phone and call for an appointment, to determine which department in a large agency can provide accurate information or services, or what

information is needed to establish eligibility. A person unfamiliar with such procedures may find them discouraging.

### Treatment Strategy

Coordination of services for the visually handicapped person has become as much a part of the treatment strategy as medical or prosthetic services, and is an integral part of the social worker's role in such an agency. The visually handicapped person needs to learn how to function in the system. He should be aware of the benefits for which he is eligible and for the purpose of these benefits. Consequently, the social worker's role as coordinator of services also involves a certain amount of teaching the client to select for himself those services he needs and to use his own initiative in getting them. It is very important for the social worker to understand the present capabilities of the client and to intervene on his behalf when the client had difficulty in making arrangements for service or benefits.

The social worker must take a leading role that ties together a variety of professional efforts into a plan that meets the individual needs of the visually handicapped person and fulfills the laws and regulations governing benefits and services. As a significant member of a visual impairment team, he must be able to function in a variety of situations and have a reasonable knowledge of the services provided by other professions. Moreover, he must be able to elicit the cooperation of co-workers in significant positions (Ault, 1968).

**CONCLUSION AND SUMMARY** In conclusion, this writer asserts that in discussing the role of the social worker in a rehabilitation center for the visually handicapped, we must not only consider the obvious responsibilities—direct intervention; personal contacts at home and in the agency; consultation with staff members, clients, and significant others; paper work; input at staff meetings; psychological and sociological counseling; coordination of services; and follow-up activities to insure that these services are implemented effectively and smoothly—but also intangible, covert responsibilities such as motivation of the client, understanding and empathy for the client's problems, awareness of reaction patterns of the visually handicapped person and significant others to the handicap of blindness, and the ability to deal with these reaction patterns. Finally, the social worker himself must be aware of his inner feelings toward the handicap and how these feelings may influence his attitude and consequently his performance. It is these tangible and intangible characteristics that contribute to the total picture of the role of the social worker in his interaction, communication, and performance in working with the visually handicapped person.

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# Modifying Attitudes and Adjustment Through Social Work Training in an Agency Serving the Visually Handicapped

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■ A fieldwork training program for social workers in rehabilitation services to the blind requires commitment and planning. The student's initially constricting attitudes towards blindness, the school's lack of instruction in this specialized field, and the conflicting pulls between social work education and practice require a sizeable investment of staff time to provide the necessary instruction and opportunities for its discussion, application, and integration. This article describes the content and process of fieldwork training in a state residential rehabilitation center with approximately 40 adult, legally blind residents and 20 to 30 clients obtaining part-time services, for a modal service duration of about six months.

A fieldwork training program has two essential requirements. First, in order to provide the best possible service to the residents, the learning experiences offered to the student and the demands made on him must be commensurate with his beginning level of competence, his rate of learning, and his eventual professional goals for himself. A progression of increasingly complex and challenging educational and practice experiences must be offered to the student as he becomes ready for them. Second, the field experience must integrate the generic concepts and principles the student learns in the classroom and apply them to the specific characteristics and needs of the individuals whom he meets in the agency. Fragmented aspects of the curriculum, various practice modalities, and different professional roles must be brought together to provide a focused helping service.

The fieldwork experience to be described here (covering a period of four years) involved 20 students, of whom two were totally blind. Two were undergraduates, 17 were in the first year of a two-year master's program, and one was completing the second year. Thirteen were in the casework sequence, and the rest were in social work practice with individuals, families, and groups. Some had graduated from undergraduate social work programs, some had experience in Public Aid, medical, or psychiatric social work, and some had no experience or training. About half would have come directly to this agency to work after their training if there had been an opening, but had gone into other fields of rehabilitation instead; the rest had gone into different kinds of social work when they completed their education, including policy and planning, administration and research, and clinical and community-based direct practice.

**ORGANIZATION OF THE TRAINING PROGRAM** The major objective of fieldwork training is not to prepare students to be expert practitioners in this particular agency but to give them the opportunity to put theory into practice and to generalize from this experience what they will be able to use elsewhere. Approximately half of the time the students spend in the agency is allocated to instruction, and half to direct service activities. For students who are in the agency two days a week, from October to June, this means approximately seven hours a week for 30 weeks, or over 200 hours of instruction and discussion of theoretical content and its practice applications.

In an individual tutorial conference of an hour and a half a week, the learning needs of the individual student and the service needs of the particular client, family, or group are discussed. The student turns in a recording in advance, with questions for the instructor on which the conference will be focused. Usually these questions are initially concerned with what the student should do to be most helpful, with policies and procedures of the agency, interviewing techniques, and community resources; later there are ques-

**Abstract:** *Social work training oriented specifically toward the visually handicapped is not widely available in schools of social work, and it is consequently the responsibility of rehabilitative agencies to provide such training programs. A fieldwork program at an unidentified state center for the visually handicapped is described under the headings of seven "themes" or dimensions of training.*



tions about the student's own feelings and attitudes which seem to be getting in the way of helpful service, about alternative ways the student-client session might be handled, and about problems of finding empirical research to substantiate or evaluate the student's working hypothesis or service plan.

In two weekly student unit meetings with the field instructor, the individualized learnings prepared in the tutorial are generalized and shared. Practice examples are here related to assigned readings in the field of rehabilitation services to the blind, and to the generic material which students are learning in their classes. Since students are in different classes in school, are doing different readings, and are trying to apply what they learn to different clients, these unit meetings help to integrate these differences and bring into focus the major common concepts and principles to be learned (Mayers, 1970).

In addition, it is important for students to learn from other members of the staff so they will not be locked into apprenticeship to the fieldwork instructor's particular point of view, so they will have a broader perspective on practice than is provided by their particular cases, and so they will have an opportunity to become full-fledged members of the rehabilitation team. Therefore, students spend an average of five or six hours a week in individual and group conferences, intake and progress staffings with rehabilitation teachers and other staff members, and in a weekly milieu meeting of all residents, which the students discuss afterwards in a seminar with the clinical director.

**DIMENSION OF TRAINING** All of these learnings and practice experiences will seem fragmented, confusing, and overwhelming to the student unless a framework is provided for content and process, so that the student knows what he is supposed to be learning, how, and why. In the fieldwork training program described here, seven themes or dimensions are introduced from the beginning at the appropriate level for each student, and are then elaborated and interrelated at increasingly complex levels of knowledge and skill throughout the year. These themes are 1) individualization, 2) the agency, 3) systems, 4) communication, 5) contract, 6) intervention, and 7) evaluation and termination.

### Individualization

Where students are usually most ready to begin, and what is most basic to their training, is the concept of individualization, or progressively discriminating categorization, the breaking up of stereotypes (due to over-generalization from limited experience) through increasingly detailed assessment of the person-problem-situation configuration (Bartlett, 1970; Briar & Miller, 1971; Meyer, 1970).

Before they come to the agency, some students have never talked to a blind person, and few have known more than one or two. Here they become aware of the truly vast range of human conditions contained under the rubric of "legal blindness" and their attention shifts from the general attribute of blindness to the rich and unique pattern of human qualities of each particular individual.

Students learn to differentiate individuals into a number of broad categories and levels of motivation, capacity, and opportunity. They gradually learn what a large range of differences there are in visual acuity and functioning capacity; differences between and within groups of congenitally blind and adventitiously blinded, with different ages of onset; differences between and within socioeconomic classes, including not only different degrees of material afflu-

ence or poverty, but also between the educated and the educable, the upwardly mobile and the immobilized; differences in ethnic and oppressed minorities and between individuals of various nationalities and cultures; differences in chronological age and developmental stages, in physical, mental, emotional capacities, and in life style.

In this setting, students encounter the multiply handicapped, including those with cerebral palsy, brain damage, retardation, and some loss of hearing. They encounter serious medical problems, sometimes terminal illness associated with diabetes, and in some instances serious mental or emotional difficulties. Perhaps most relevant for the kind of services these social work students are learning to provide, they find a broad ecological range from severely restricting to highly facilitating environments, and individuals at all stages of painful transition in either direction. Some residents who have been sitting at home with nothing to do are trying to become active, independent persons, living the kind of life they very much want yet greatly fear. Others are being forced to retire from a previously varied and satisfying life into the confined and restricted life of the aged or chronically ill. And there are yet others who, although still young and healthy, are suffering the transition from previously challenging experiences in school, college, or employment to segregation and rejection in the current job market where, unless they are able to maximize their self-development, they face underemployment and stagnation of their potentialities.

### DEVELOPING EMOTIONAL AND INTELLECTUAL SENSITIVITY

Learning to know and understand these many different kinds of individuals in all their uniqueness "combines emotional sensitivity with objective appraisal, that joins the ability to feel with a person to that of thinking knowledgeably about him" (Perlman, 1957, p. 140). To develop this emotional and intellectual sensitivity to the individual requires practice in the generic skills of the social study, social history taking, diagnostic assessment, evaluation, and treatment planning, combined with the specific knowledge and skills needed to relate easily and comfortably to blind persons and to provide services which are useful to them. "This means a rigorous attempt to discriminate the many problems the blind have in common with other handicapped persons and nonhandicapped suffering human beings from those problems specifically attributable to blindness" (Blank, 1971). This knowledge is organized, and systematic, orderly thinking about it is encouraged through the use of various diagnostic and social study outlines (Compton & Galaway, 1975; Goldstein, 1973; Scherz, 1970; Schwartz & Goldiamond, 1975; Siporing, 1975; Sundel, Radin & Churchill, 1974).

### A New Perspective

In the process of social study and assessment, the social worker helps the individual who is seeking rehabilitation to gain a broader and deeper view of himself and a new perspective on his situation, thus leading him to think of aspects of his total situation which he had not previously considered. As the social work student learns to increase his own understanding of another individual, that individual also gains greater understanding of himself, which leads to changes in his attitudes and adjustment. A deeper understanding of the individual also helps other members of the rehabilitation team to serve him better by changing their attitudes and adjustment to him. This is why a heavy emphasis is placed on exploring and evaluating the person-



**“In using a systems approach, the student keeps in mind that ‘no man is an island.’ He learns to think of the individual as being in continual interdependent transactions with others. . .”**

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problem-situation configuration in the social study and assessment process.

Throughout the year, students develop understanding of the person by acquiring increasingly detailed and specific knowledge of his physical, intellectual, emotional, and social functioning; his socioeconomic background and adequacy in role and task performance; his life cycle and developmental stage; his problem-solving and adaptive capacities; and his frustration tolerance, self-concept, and identity. Theoretical understanding is enriched with empathy as students begin to experience the emotional impact of the many deprivations accompanying visual impairment (Carroll, 1961), severe illness, and old age. Students develop understanding of the problem by distinguishing what can be changed through skillful intervention from what must be borne, even with the comforting help of emotional support, caring, and concern. They learn to differentiate 1) problems which need intervention from the outside in order to increase the degree and effectiveness of services for self-development and social participation which are provided by social systems and organizations; 2) problems requiring intervention in interpersonal relationships through arbitration of conflicts and improvement of communication skills; 3) problems which require intervention through the teaching of new adaptive skills and behaviors; and 4) problems which are ameliorated through the contribution of new insights and perspectives.

**STUDENT CASELOADS** Student caseloads vary with the amount of service required and the student's ability to handle a heavy workload. In addition to individual and family cases, students participate in at least one small group and are responsible for one or more intake evaluations, usually toward the end of the year. Although it is not possible to present case examples in sufficient depth of detail to make them truly come alive, the following illustration will show the age range and kinds of problems dealt with in a typical caseload of six individual and family cases.

### **Case Histories**

1) A 65-year-old widow, newly blinded from glaucoma, who was a high-school Latin teacher in a small rural community, focused on problems of adjusting her somewhat rigid attitudes to the varied cultural, age, and behavioral differences of the other residents. 2) A 20-year-old congenitally blind young woman of average intelligence, but with a tendency to live in a dream world, focused on realistic exploration of her plan to go to college. 3) A 23-year-old woman, newly blinded as the result of a drug reaction, focused on making plans for herself and her three-year-old daughter, taking into account the woman's long-standing hostile dependency on her family. 4) A 19-year-old congenitally blind young woman focused on supporting her strivings

toward independence and improving her relationship to her mother so that she could leave home without feeling guilty. 5) A high-functioning man in his mid-thirties, recently blinded in a near-fatal automobile accident, focused on developing greater understanding of the emotional impact of the accident (which he and his family had never discussed because it was too painful), and on beginning to cope with the demands of making a new life for himself as a blinded person and finding new ways of relating as such to his wife and child. 6) A middle-aged woman, initially seen while still hospitalized in a psychiatric facility because of a suicide attempt, focused on interagency relationships and evaluation of her motivation and capacity to benefit from the educational program of this agency, and to use the resources of other community agencies.

In cases such as these, students learn the importance of first exploring the presenting problem and immediately giving some concrete help with the most pressing problem (Germaine, 1968). They then consider whether there is an underlying problem, and of what duration and pervasiveness it is, in order to determine whether the current stress is intensified by association with previous early or cumulative trauma or overwhelming precipitating crisis. In assessing a crisis situation or any aspect of the impinging environment, the themes of agency and systems are introduced, with content focused on teamwork, accountability, and changing the agency from within, and on systems theory relevant to the specific network of social systems or reference groups, i.e., family, school, work, community, and social welfare services and legislation which are currently most influential in the person's life.

### **THE FUNCTION OF AN AGENCY**

The function of the agency in which students get their training is to provide a comprehensive prevocational rehabilitation program for adults who are legally blind, including training in activities of daily living, braille, electronics, haptic and industrial arts, mathematics, oral communication, typing and script, orientation and mobility, physical education, and personal management. Special programs include low vision evaluation and training, supervised study for the G.E.D., college preparatory training, crisis intervention during hospitalization for acute onset of visual impairment, family participation, senior citizens, work-study, and volunteers. Clinical services include comprehensive medical care, psychological testing, social and recreational services, vocational, individual, family, and group counseling.

### **Fieldwork Experience**

Fieldwork training and experience in this kind of specialized agency differs from that of a generic family service agency in three ways which are characteristic of the differences between primary and secondary settings. First, in this secondary setting, clients are not coming for casework, groupwork, or counseling per se, but for specialized educational services. Therefore, the social worker must find ways of being useful which support and strengthen the primary function of the agency without thrusting social treatment on the client who does not want it. Second, this strengthening of the primary function emphasizes the major importance of teamwork and the social worker's mediating role between the client and the other disciplines on the team. Third, to function effectively in a secondary setting, the social worker needs to have a great deal of specialized knowledge, in this instance about blindness, resources available to the blind, and the content and



process of rehabilitative education. The more capable students search out this specialized knowledge for themselves with great interest, while the less capable receive it from the fieldwork instructor as they need it.

It takes time for students to get acquainted with staff. Warm, friendly relationships, mutual appreciation, and a common bond of shared emotional experiences develop gradually. The year begins with anxious introductions and learning names, a tour of the building, an exposure to sighted-guide techniques under the blindfold, and afterwards a first, halting attempt at talking about one's feelings. Schedules for interviews, conferences, and group meetings are arranged and office space is allocated. The history, functional goals, and organizational chart of the agency are described; the various roles of the social worker are outlined; and bibliographies and reading material on working with the blind and partially sighted are distributed. Students are then set to work reading case records of the individuals assigned to them, in order to develop a purpose and plan for their first interview or group session. This plan is then discussed in advance in their first individual conference and again afterward, as the conference usually turns out very differently from what was expected.

**ACCOUNTABILITY TO THE AGENCY** Thus begins the process of learning accountability to the agency, to the individuals seeking rehabilitation services, and to the community which sanctions and pays for those services (Newman & Turem, 1974; Tropp, 1974). This accountability is a process of clearly formulating one's intentions, sharing and reviewing them with other members of the rehabilitation team, trying them out, critically evaluating their effectiveness, and making changes and corrections so as to do it better next time. This process is carried out in writing as well as orally, as the student learns different forms of recording: process recording for the analysis of who said what and why, the verbatim details of important transactions through which interviewing and counseling skills are learned, and summary progress notes and detailed social histories for the record. The student best demonstrates his accountability by clearly and specifically recording goals and methods of achieving these goals, differentiating the client's goals, roles, and tasks in the process from the worker's, explaining the differences between them, and accounting for the various factors contributing to any failure or delay in achieving them.

### Learning Diplomacy

In order to be able to discharge fully the threefold accountability to agency, consumer, and community, students must become acquainted with three sometimes incompatible roles: 1) the good bureaucrat; 2) the mediator between agency and consumer; and 3) the intraorganizational change agent. Since social work is predominantly practiced within agencies, it is important for the social worker to develop bureaucratic skills in order to negotiate the system; to understand organizational structure and work within the policies and procedures of legitimate authority; to conserve emotional energy by maintaining objectivity; to facilitate good team relationships through diplomacy and willingness to compromise; and to recognize the limits of available emotional support (Pruger, 1973).

In functioning as a mediator between the agency and consumer, the social worker is responsible for helping the individual client make maximum use of the agency's resources, program, and personnel. The worker also provides

the necessary feedback to keep the entire agency continually responsive to individual needs. To do this, students need to look at the agency from different points of view (Scott, 1969), assess its weaknesses as well as strengths, and to consider in what ways it might improve itself (Patti & Resnick, 1972).

### Interweaving Forces

In using a systems approach, the student keeps in mind that "no man is an island." He learns to think of the individual as being in continual interdependent transactions with others, in multiple roles, subject to a "system of interweaving forces, all having reciprocity and feedback with each other" (Meyer, 1970, p. 123), so that a change in one part of the system will affect the other parts. The student therefore looks at the parts of the systems around the individual which may need to be changed, such as the attitudes of members of the family, work or school groups, or the network of health, education, and welfare services and resources which may need to be mobilized on the individual's behalf.

To get around this network, the student learns to use various directories of social agencies, and begins to work with specific staff members in other agencies in order to find resources, make referrals, and help the client contact different agencies when emotional support or mediating services are needed. The student social worker who has waited all day with his client for services in a Public Aid office or clinic has a different kind of knowledge from one who has merely read about the deficiencies of the welfare and medical care systems.

Through such experiences, the student becomes more involved in social issues. He learns about changes in major federal and state legislation affecting resources and services through discussion of the *Washington Report* from the American Foundation for the Blind, the *Washington Bulletin* of the Social Legislation Information Service, local bulletins of the National Association of Social Workers, and the Welfare Council, and publications of the organized blind. Having followed the progress of an important bill, and knowing something of its historical context and the current issues, the student is ready to take action as a responsible citizen and politically conscious social worker.

**COMMUNICATION SYSTEMS** In addition to gaining an understanding of the individual and the influential forces that impinge on him from the agency and outside systems, it is necessary for the student to learn relationship building through communication skills (Kadushin, 1972) and to develop a contract with the individual, family, or group based on mutual goals, roles, and tasks (Maluccio & Marlow, 1974; Pincus & Minahan, 1973).

The familiar communication skills which the students work on throughout the year include: 1) Starting where the client is, and staying with his feelings. 2) Constantly testing one's understanding by asking for feedback, since "the great enemy of communication is the illusion of it" (Kadushin, 1972, p. 37). 3) Increasing accurate empathy, nonpossessive warmth, and genuineness, Rogers' "necessary and sufficient conditions for therapeutic change" (Truax & Carkhuff, 1967). 4) Making the interaction more focused and purposeful so that the relationship does not become an end in itself, i.e., striving "to be consistently helpful rather than consistently popular" (Kadushin, 1972, p. 43). 5) Developing self-awareness of one's own attitudes and behavior towards the blind (Lukoff, Cohen, et al, 1972). 6) Learning to maintain an optimum balance between interviewer and inter-



**“The social worker has the responsibility of . . . providing the necessary conditions and encouragement to keep the individual working on the goals he has chosen for himself.”**

viewee, between activity and passivity, and between task and person orientation (Kadushin, 1972). 7) Learning to ask “funneled” questions which go from the general to the particular in order to develop both range and depth of information and relationship (Kadushin, 1972). 8) Resolving value conflicts and concerns over such issues as authority and dependency; manipulation and advice-giving; self-determination, confidentiality, acceptance, and non-judgmentalism; and racial, class, age, sex, and life-style biases. These generic communication skills and values are related to specific content on attitudes toward the blind and other minorities who are discriminated against (Lukoff, Cohen, et al., 1972).

**THERAPEUTIC ALLIANCE** Communication skills and the implementation of values aim at the development of greater mutuality and reciprocal interaction between social worker and client. These skills enable the client to take an increasingly important role in determining what, how, and by whom services will be provided, thus realizing the growing practice ideal of including the consumer in “maximum feasible participation” in formulating policy and planning programs. Establishing a contract, working agreement, or “therapeutic alliance” (as it is sometimes called) enhances consumer participation by bringing about open, frank discussion and resolution of differences as to what is to be accomplished, who is to do what, and how.

There must be no “hidden agenda,” or unshared objectives, in this process. The realism and feasibility of the goals on either side must be carefully considered. The respective contributions of each participant must be spelled out with the clear understanding that “when the client assumes the responsibility for choosing among alternatives and using his own skills and resources to deal with his agreed-upon tasks, this enhances his motivation investment, and self-esteem” (Maluccio & Marlow, 1974, p. 32). The social worker has the responsibility of, first, providing the necessary conditions and encouragement to keep the individual working on the goals he has chosen for himself, and second, helping him deal with resistance and blocking, acting as the client’s advocate in overcoming external barriers and as therapist in confronting crippling anxieties from within.

**ESTABLISHING A CONTRACT** In learning the process of establishing a contract, it is useful for the student to work with the instructor on establishing a learning contract for himself, specifying the particular knowledge, skills, and changes in behavior which the student wants to achieve within a specified time limit, for instance, by the end of the quarter; and what exactly the fieldwork instructor’s contribution toward this will be (e.g., presenting specific content in student unit meetings and individual conferences; providing relevant, corrective feedback by means of marginal comments on process recordings; and exploring, confronting, and interpreting relevant material in focused case discus-

sions which illustrate how the knowledge, skills, and behavior which the student wants to develop can be used in specific practice situations).

### Intervention

When students begin to consider alternative forms of intervention or social treatment—that is, “attempts to induce change selectively” (Briar & Miller, 1971, p. 173)—they are learning to help the individual improve himself or his situation in ways he could not do by himself but only with the help of others in his natural environment. Students learn what kinds of specific inputs the social worker makes in order to bring about the following types of changes: 1) in the person, through (a) changes in his physical condition by facilitating his maximum use of medical treatment, and (b) through changes in his psychological condition by contributing a different attitude, point of view, or perspective; 2) in the person’s response to his situation, through facilitating his self-expression and teaching him new coping capacities and adaptive behaviors; 3) in the stress created by various situations, through lessening the demands on the individual and increasing his satisfactions; and 4) in the people in his social world, through changing the attitudes and behavior of his family, employers, teachers, or other members of the rehabilitation team.

At this point, usually toward the end of the year, students have learned the major differences between supportive, reeducative, and reconstructive interventions, and the criteria for selecting various individual, family, or group treatment methods and modalities (Hollis, 1972; Northen, 1969; Stein, 1969). By this time, also, students are familiar with the objectives, methods, and problems of social and rehabilitation services for the blind (Hardy & Cull, 1972) and can begin to assess their own level of competence (Committee, 1973) in planning, providing, and supporting these services.

**IMPACT OF TERMINATION** No matter how many times one comes to the end of a truly meaningful experience, as the fieldwork experience certainly is, one is never sufficiently prepared for the emotional impact of termination. For this reason, much of the final quarter is spent in helping the student work through an evaluative process. First, the student explores the meaning of his experience: how he feels about the agency now, about the learning experience, and about his relationships to his colleagues and clients; how effective he feels he has been; how invested in the individuals he has tried to help; and the extent of his frustrations and satisfactions during the helping process. Second, he investigates the meaning of termination to the client: how he has benefited, what remains to be done, what lies ahead. Third, he completes the termination process: planning what has yet to be done in a termination summary for the record; reviewing and summarizing what has been done in a way that recapitulates and reinforces learning, supports and stabilizes positive accomplishments, and encourages the expression of disappointed expectations and apprehensions about the future. Insofar as it has been a good year for the individuals served, for the students, and for the agency, they will leave one another with feelings of mutual respect and the satisfaction of work well done. Insofar as it has been bad, they will know why, what could not be helped, and what can be improved in the future.

An example of how students change over the year is that of one who said after her first interview that much of the time she had not really been able to listen to her client because



her mind had kept wandering away from the subject. When asked what her mind had wandered toward, her eyes filled with tears and she said, "I thought I'd just die if all of a sudden I lost my sight and could never see again. What would there be to live for?" At the end of the year, she put off her own summer vacation to come back to the agency after school was over so she could go on a weekend camping trip with the young people of whom she had become so fond, young people in many ways like herself, except that they were blind.

**EVALUATION OF FIELDWORK EXPERIENCE** In conclusion, the following is a quote from an evaluation of the fieldwork experience, left by a student unit for others coming after them:

New students coming to this setting should be prepared for the following reactions: 1) *Denial*. They will initially deny the impact of working with the blind and equate them with other groups with problems; they will at first overlook the incredible depression that permeates the entire agency. 2) *Anxiety*. Intensification of reactions in coming to a new setting—overemphasis on need for structure, or feeling there is too much structure. You (the student) feel locked in here, separated from the rest of your world. And you feel panic at thinking, "I could be blind as easily as these people."

Initially, it seems overpowering to have to deal with so many staff members; but this is a good way of getting oriented to the agency, understanding your own role somewhat better, feeling more secure, learning how to help your clients. We recognized that the staff could feel threatened by us being here, by the intrusion of student social workers into a very tightly knit organization. Keeping an open mind regarding staff will allow for many excellent learning experiences.

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# Comment

*A special forum for individuals to respond in detail to material published in the New Outlook for the Blind or elsewhere, to present new ideas, or to raise issues which relate to the specialized field of work with blind and visually handicapped persons. Contributions should be 350-1000 words in length.*

## The Library of Congress Braille Program: Present and Future

Richard H. Evenson

"Take a hard look at DBPH's braille program." That, in essence, was my assignment (or one of them) when I assumed the duties of planning officer for the Library of Congress' Division for the Blind and Physically Handicapped. As you might suppose, it is an ongoing assignment; the primary purposes being to determine appropriate solutions for knotty problems, to modify solutions with time and experience, and to review and evaluate continually new problems, solutions and opportunities. I am pleased to report that we are at a plateau—or, more precisely, a vantage ground from which to survey where DBPH has been and where it is going in the field of braille.

This ongoing assessment has involved, and will continue to involve, many persons from inside and outside the Division. DBPH staff members include those dealing with program planning and budgeting, book and magazine selection and production, library network service, reader service, publications, technical considerations, reference materials, computers—the whole gamut of Division activities. And from outside the Division there are braille producers, volunteer braillists, materials suppliers, network librarians, publishers of braille periodicals, special consultants and, of course, the readers. This stepped-up, ongoing assessment is first, foremost and always for braille readers who have contributed, individually and through organized spokesmen, to whatever success has been achieved and will be achieved. Readers have repeatedly shown that they care about the future of braille. They have written to the Division, talked to us by phone or in person, encountered us at conventions and other meetings—always encouraging, urging, pushing us forward.

### Interim Holding Actions

The scope of assessment has been wide. First, there was a preliminary survey of the Division's policies and practices in braille. Conducted in the fall of 1973, this survey resulted in recommendations specifically framed as interim policies and measures; other practical recommendations and actions followed. Most of these actions can be considered holding actions, though one or two have since evolved into more permanent actions or positions. For example, greater emphasis was to be placed in book selection on the acquisition of titles of quality and interest, rather than focusing primarily on the total number of titles. The

effect of this action was to encourage books of greater length; but once the budget ceiling was reached, no more titles could be produced. Indeed this happened, for in fiscal 1974, 247 braille titles rather than 300 were produced by the three braille presses.

A second holding action was placing ceilings on the number of braille magazines produced (now 30) and the number of copies produced. To the second end the number of subscribers was fixed at the number then listed. Any person wishing to begin receiving the magazine had his name placed on a waiting list; he would become a subscriber when another dropped off. This dropping off was not just a passive matter. The Division insured the weeding of magazine subscription lists by requiring a reader to notify the appropriate braille producer of his intention to continue or discontinue receiving the magazine. Those failing to respond the first time were given one more chance and only then were dropped from the list. The resulting savings have enabled us to spread the money in the braille account more effectively. For example, in 1973 there were 1073 subscribers to *Playboy*; today there are 931. There were 1071 subscribers to *National Geographic* in braille; today there are 925.

### Long-Term Actions

Some longer-term actions had already been taken, and still more were to follow. Of crucial importance was seeking and obtaining a significant budget increase for braille of \$202,000, or a 26.7 percent increase in fiscal 1975 for a total braille budget of \$960,000, and seeking a \$332,000 or 34.9 percent increase for fiscal 1976. Another major effort of that first year's activity was a survey of braille readers. To assure ourselves of a superior and objective survey instrument and useful results, we sought bids and awarded a contract to Government Studies and Systems (GSS), Philadelphia. It was a collaborative effort, and a very successful one.

During February and March 1974 GSS and DBPH planned the survey and constructed the sample and the questionnaire. DBPH pulled names from four mailing lists: its own *Braille Book Review*, the National Federation of the Blind's *Braille Monitor*, the American Council of the Blind's *Braille Forum*, and the American Foundation for the Blind's *New Outlook for the Blind*. Cloverbrook Printing House for the Blind produced and mailed the braille-and-print questionnaires, DBPH staff scored the answers, and GSS performed the statistical analysis. Finally, this writer prepared an interpretive report of the survey findings, with special attention to their implications for the DBPH braille program. Print or braille copies of both the GSS and the DBPH reports are available on request.

### Significant Survey Findings

This survey resulted in some significant findings and implications for the program:

The combined audience of the four magazines is 16,000. From this, 1,735 people were selected as a sample population. The reader response was relatively high at 40 percent. The responses showed that there is a strong preference for braille reading

and a significant number for whom braille is the only reading medium. Braille readers like both books and magazines, read two to six volumes per month, and apparently consider the length of a book or magazine a secondary matter. A majority borrow books from the regional libraries and about the same number find such library services adequate.

Book category preferences are clearly in the areas of entertainment, general information, hobbies, and education; magazine category preferences are general interest, news and public affairs, and entertainment.

The reader profile is very interesting. A majority are not yet 40, and fewer than 10 percent are over 65 years old. About one-quarter are full- or part-time students, and fewer than half are employed full- or part-time. "Professional and technical" was the employment category most often marked, with "housewife" a poor runner-up.

As I said earlier, a great deal of the first year's effort was studying, planning, surveying—and holding tight. This kind of effort will continue as appropriate, but some positive actions have also been taken.

With more money available and with careful budget management, DBPH has been able in fiscal 1975 to produce 297 press braille titles, just short of the 300 planned. The total number of titles was increased by 50 by arranging with Cloverbrook to duplicate four thermoform copies of 50 handcopied braille titles. Many titles appearing in recorded form are now also appearing in handcopied braille. Braille magazine ceilings have been raised for fiscal 1976 to accommodate all on the waiting lists at this time. A total of 200 handcopied books will be duplicated in fiscal 1976.

### Looking Toward the Future

As part of the policy of continued exploration and planning, a meeting of producers and providers of braille materials was held in May 1974 under DBPH auspices, and a second one was held in conjunction with the AAWB convention. Emphasis was on future prospects as well as present problems.

The Division has also initiated a number of other plans to implement the braille program. A special braille print train was installed at the Library of Congress computer facility to provide braille materials for blind staff members and to provide an on-site experimental base for various production techniques. DBPH is encouraging a national organization serving blind persons to sponsor a national conference on braille technology to explore ways of lowering costs and to consider alternate production techniques. The fiscal 1976 budget justification includes a substantial portion for support of further studies of braille technology.

Through all of this there is, of course, the continuing stimulus of contact with and feedback from the ultimate consumer. Those involved in producing braille materials must look even harder at the braille program; must use technology, planning, and sound financial and production practices; but above all must remain keenly attuned to the braille reader's needs for and uses of braille. For his part, the braille





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reader must show producers and planners that he is using braille library materials; indeed that he must have these materials for his personal growth and satisfaction. Producers and consumers, then, must be more active in working together, in responding to each other.

*Mr. Evenson is a program analyst for the Division for the Blind and Physically Handicapped, Library of Congress.*

### Kinesthetics for the Blind

#### Jerry McArthur, OTR

As an extension of the rehabilitation program at the Albany Association for the Blind, I have been developing, over the past three years, a class in kinesthetics for congenitally blind young people. These students are referred to the agency for their potential for advancement in vocational training. They come from six New England states, are all around 20 years of age, and board in foster homes in Albany.

The agency's services in this program include diagnostic evaluation; prevocational, vocational, and on-the-job training; and job placement. The program also provides psychological testing and counseling along with training in mobility, personal management, and housekeeping skills. Physical therapy and utilitarian exercise are integral parts of the curriculum. My work has been designed to expand the students' potential for satisfying body control and to stimulate their imaginations.

After observing the students' mobility training on the streets of Albany, I began to conceptualize a way to extend their body movements, combining my skills as a trained occupational therapist and, for 15 years, a teacher of modern dance.

#### Students' Bodies in Poor Condition

These blind students have many physical and emotional problems. To begin with, for most of their lives, no one has given any specific attention to their bodies. As children most of them were cautioned not to run, stretch, or exercise in any way lest they get hurt, leaving them with the results of 20 years of physical passivity, fear of losing balance, and dread of using space. In addition, they are well behind their sighted peers in experience with heterosexual body contact. They have no image of their own bodies—they are unaware of their poor posture, shuffling gait, and other "blindisms"—nor have they any sense of the range of their muscular potential.

Because they cannot see to reflect a movement which I, as a teacher, might demonstrate, each instruction must be carefully verbalized. I have also found that I must touch, gently of course, their muscles and limbs so they can feel where their bodies can go. As a result, I work only with two or three students at a time for a one-hour class.

To support the students' bodies and to limit the space they need to work in, I start each class with the students lying on the floor, stretching and twisting to the full reach of their arms and legs. For these first movements, we use, for music, "Amazing



Grace," a piece just long enough to compel the students to develop a pattern of movement and gentle enough to relax them completely.

### Exercises Touch on Every Part of Body

I have tried to establish a progression of exercises that touch on every part of the body and, by isolating each part, help the students to become aware of each part. We work systematically from head and neck movements down to shoulders, arms, chest, hips, legs, and feet. Their coordination is extremely poor, and when I ask them to put their shoulders forward, they invariably bend forward at the waist without moving their shoulders at all.

We attempt all the exercises of a regular modern dance class—I have tried to evaluate which exercises are of use to these students and which are not. One movement pattern which I have discarded is sitting on the floor and trying to extend both legs out to the side as far as possible, then reaching with both arms down to one ankle or the other. This is too difficult for them and does little to improve either the thigh or calf muscles which they need to strengthen for walking. We work with all movements which will improve their balance and stretch their bodies to allow them to discover what it is like to really move freely.

### Flexing Legs and Feet Important

Invariably the students' simple walking gaits are awkward and strained. We work a great deal on leg and foot flexing, both standing and sitting. This gives the students a whole new awareness of the strengths and weaknesses of their leg and foot muscles. One very simple exercise is sitting on the floor, legs extended, flexing one foot at a time, then combining that with flexing the knee. I first have to move their bodies so that they associate the words "flex" and "extend" with the appropriate and specific activity. The proper coordination requires great effort and concentration from them; the exercise is of no use at all if it is done sloppily; we work hard to get it done cleanly and precisely. Then they can really feel their muscles working.

We start sitting on the floor, gradually working up to kneeling positions or standing back to back. We try all manner of bends, stretches, swings, body tilts, alternate balance—one foot in front, then bend forward, side, and back—a difficult challenge to the students' precarious balancing abilities. Turns are hard, too, and we devise as many ways of doing them as possible. We use a shelf-like counter for orientation: body facing the counter, then side, then back to the counter, and on around.

### Stretching the Imagination As Well As Muscles

Some exercises ask students to explore the space around them; in this we begin to stretch imaginations as well as bodies. Is the space warm, cold, hard, soft, prickly?—totally new material for them. Just to get them to move freely is a real accomplishment. Gradually, as they gain

confidence, we try having them work in relationship with one another. We start off with the idea of a force, gentle at first, and then pulling or pushing, etc. They discover how such forces make their bodies react, and then they exert these forces on each other.

Let me expand a bit on the use of imagination in conjunction with the use of their bodies. This is all new to them and is frequently greeted with howls of anguish, "I don't understand what you want!", "I can't do THAT!". Well, sometimes they can't respond but after much coaxing and clearer explanation, they will try anything.

I got two students, male and female, working together to an extremely lovely and tender bit of music. "The First Time Ever I Saw Your Face." They developed a whole pattern of movement; holding hands they tilted from side to side, took it down to the floor on one knee, rocked back and fourth, turned back to back and managed to find each others hands, then remarkably enough, they touched each other's faces, and then the girl in a quiet burst of pleasure, tenderly touched the back of the boy's neck. This was a lovely thing to see, not for the sexual connotation, but for the sake of seeing them begin to move in relationship with each other.

When I first started working with these students, I was exploring too—I still am! Early on I hit a low spot in my expectations. After some long thinking, I had an insight which I think is of value: I discovered that I had been working with a double negative—that is, the students had no image of their bodies and nothing but the sound of my words and of the music to respond to.

### Precise Instructions and Firm Demands

Therefore, I restructured my teaching with a double positive: I became more precise in my instructions and firmer in my demands that any exercise be done fully and properly to the best of a student's ability. "Hold both arms out to one side. No, all the way out." I had to follow even this precision with moving their arms out (fully) to the proper position. Then I bring the arms down to the floor and back up the other side and, lo, they begin to sense a swing of some nature. I must emphasize that I must not get louder in my demands, only more positive, patient, and clearer.

### Selecting Appropriate Music

I select music for our work which very obviously evokes the forces and moods we are trying to explore and which is in the students' idiom so that they relate easily to it. I can use songs which mention sight without upsetting them. (Indeed, they have a very interesting way of commenting, "Oh, let me see your ring!", or, "I see you have holes in your sneakers.", after I tell them to feel where my feet are.) So I can be very free in my choice—for example, "Amazing Grace" with the line, "Then I was blind and now I see," or "The First Time Ever I Saw Your Face." They dearly love Scott Joplin for the pattern of "going down the body" exercises.

I give no grades and write no progress reports, so the classes create a minimum of tension. The only thing I ask of the students

is that they be willing to TRY. After six months one girl smiled at her development and mastery of a particular exercise, a boy was pleased with his progress in walking straight and tall, and at the end of last year, I was amazed and pleased that they all wanted to give a "recital" for the staff to show what they had accomplished.

For some students the class is of little value because they feel the demands on their bodies are too difficult. For these we try hard and long, but when it seems that the class is only adding to their frustrations, we naturally excuse them from it.

### Strong Motivation Important

Students with stronger motivation benefit a great deal. They incorporate all the work into an addition to, and an extension of, their mobility training, spatial orientation, and relationships with others. They enjoy becoming acquainted with their bodies and using all their muscles and trying out their imaginations. These are important emotional gains.

While I have found it difficult to discern much sustained change in the students' overall body patterns, their new awareness of the potential of control of their bodies and of their space seems to give them confidence in themselves, in one another, and in the value of a new experience.

### Students' Responses

There is a wide range of response among the students to this kinesthetics class. The ones who need it most are the ones who have the most physical limitations, and they are also the ones that resist it the most and are reluctant to try to use their bodies. Perhaps their apathy stems from so many years of neglect that literally their bodies are almost in a state of atrophy. A course of this nature ideally should be started when these people are children and just able to walk.

Is the source of their apathy neglect by parents and teachers, or does it develop because of very low expectation from parents and teachers?

A very positive response to the class comes from the students who are more physically fit. They wish they could have this class every day, and they respond with enthusiasm to every suggested exercise and idea.

### "Hey, I disappeared!"

I'll dwell a bit on one girl who is *quite* rotund. At first she was most resistant to the whole idea of using her body at all. After about four months of intense work on my part, cajoling, praising, and getting her interest and confidence, I asked her to lie on the floor and imagine that the sun was melting one part of her body at a time. I used an appropriately soothing piece of music and she proceeded to get really involved with it, one shoulder going limp, one foot, etc. At the end of the music she was wreathed in smiles, and shouted, "Hey, I disappeared!"

*The author teaches movement to blind students at the Albany Association for the Blind.*



# Review

**The Art of Fund Raising**, by Irving R. Warner. New York: Harper & Row, 1975. \$7.95.

Reviewed by Martin C. Lehfeldd

Several years ago the recently-appointed development officer of a small college visited me to pick my brains about a major campaign his institution was planning to launch. I asked him about the preparations being made. He told me the school had reserved a banquet hall for the kick-off dinner, and had the assurance of a show business celebrity that she would attend and serve as honorary chairman of the drive. Interested, I leaned back in my chair and waited for some further information about the arrangements. But he had nothing else to tell me. That was the campaign plan. There were no established goals; there was no case statement; no leadership structure; no prospect list. Nothing else. This well-intentioned but poorly-advised man and his college president badly needed the kind of guidance provided by Irving R. Warner's *The Art of Fund Raising*.

This delightfully-written, commonsensical description of how one successfully practices the most imprecise art of fund raising is aimed at the amateur volunteer. It should be required reading as a refresher course for most professionals as well. Now, when young men and women interested in fund raising careers ask whether there is any fundamental reading on the subject, I am delighted to be able to recommend Mr. Warner's book.

A great deal is written daily about fund raising. Most of it is sententious and either obvious or otherwise useless to the average practitioner. The worst pieces are those that try to cast fund raising strategy into Holy Writ. Warner's book is refreshingly free of cant and pomposity.

From the surprising beginning that may offend those readers looking for easy answers right through to the last appendix (an excellent checklist for special events), Warner guides a safari for the "Elusive Donor" that virtually guarantees a good "shot" at the quarry. The book contains excellent sections on how to select campaign leadership, how to state your cause's case, how to determine goals and costs, how to identify constituencies and build up lists, when to consider the use of direct mail, and how to rate prospects and make assignments. Drawing upon his own quarter-century of experience, Warner gives case after case of tactics and approaches that have worked. Even more helpfully, he is willing to share what he has learned from his mistakes—particularly in a special chapter devoted to nine situations that "bombed."

My favorite chapters are "Fund Raising Methods, Events and Tactics: Acronyms to Zip Codes," and "Cliches, Chestnuts and Caveats." In pithy and often whimsical paragraphs, Warner lightly, but pointedly, touches upon a wealth of matters that virtually every campaign will encounter in some form. Two examples: "Never ask a major contributor for advice on how to

conduct your campaign unless you really want it. He'll give it to you, and if you don't follow it he could get mad. If you do follow it, it probably won't work." "The man who suggests you need 1,000 contributions of \$10 each for your \$10,000 project (a) knows arithmetic, (b) thinks he's given you a brilliant solution, or (c) won't give more than \$10."

The average good-willed volunteer is hampered by a wealth of misinformation and inaccurate notions about what constitutes successful fund raising. *The Art of Fund Raising* gently but firmly demythologizes such topics as publicity, fund raising benefits, and the world of foundations.

Finally, if after reading this book, you still don't feel qualified to raise money, there's even a section that provides excellent advice on how to select the best kind of professional counsel for your project or campaign.

I feel a bit strange reviewing a volume without mentioning some caveats. But I don't have any. The book jacket blurbs are accurate. This is a first-rate piece of work by a professional whose well-written advice will help anyone committed to raising money for a good cause.

Mr. Lehfeldd is vice president for development, Clark College, Atlanta, Georgia.

## Editors' Choice

Letter from a friend: I am almost ready to concede that the war against "hopefully" has been lost. In little more than a decade, this frightful, ear-bending virus has wormed its way deep into the national vocabulary, and now one commonly hears President Ford and television-talk-show guests and cabdrivers and athletes and Secretary Kissinger and Bartenders and children and one's best friends succumbing to this adverbial inanity on occasions when they wish to express, let us say, an expectation of lower employment figures, the renewal of a sit-com option, less traffic over on Lexington, an improved pass-completion average, peace in the Sinai, the long-awaited arrival from the West of a mass of cool air and the concomitant amelioration of the disposition of habitual late-afternoon bourbon drinkers, a quick trip down the block to Baskin-Robbins, and one's presence for drinks on Friday. On these occasions, and on many others, I have been in the habit of muttering "you hope," or "it is to be hoped," or "one hopes" to myself when the solecism is committed, but always, of course, to no avail. Now I have concluded that the only conceivable antitoxin for this epidemic may be the last-minute discovery of a vivid, homely, and memorable example of the correct use of "hopefully," and I have recently put in a good many hours of research in my private word laboratory in pursuit of this great remedy. Yesterday, I found it. Like many other epochal achievements of mankind (Paul Muni's conquest of rabies, Don Ameche's discovery of the telephone), mine came by accident—a tone of voice I heard at my

place during a domestic crisis just before breakfast. I think the moment can best be set forth in playlet form:

### THE NICK

*Dramatis personae:*

Self

Wife

Son (aged five)

(Note: The second and third roles are played entirely offstage.)

As the curtain rises, Self is discovered, clad in striped pajama bottoms, at the washbasin in the family bathroom. He has just finished shaving and is now leaning toward the mirror as he trims, with a pair of nail scissors, his tasteful pepper-and-salt mustache. Suddenly he leaps back in horror and claps his free hand to his face.

Self: Ouch! Ow! (He peers into the mirror.) Ow!

Wife: What happened?

Self: I cut my nose!

Son (hopefully): Off?

### CURTAIN

From "The Talk of the Town," November 10, 1975, *New Yorker Magazine*. Reprinted by permission; © 1975, The New Yorker Magazine, Inc.

## Current Literature

A report of significant new additions to the Migel Memorial Library of the American Foundation for the Blind, prepared by Elaine Siegel, librarian.

### Assessment

**The Callier-Azusa Scale**, edited by Robert Stillman. Callier Center for Communication Disorders (1966 Inwood Road, Dallas, Texas 75235), 1974, 73p. \$3.32. A developmentally-based instrument to assess abilities of low-functioning deaf-blind and other multiply handicapped children. The Scale contains five subscales—socialization, daily living skills, motor development, perceptual development, and language development. Assessment is based on teachers' observation of students' spontaneous behaviors. Further information available in Robert Stillman's *Assessment of Deaf-Blind Children: The Callier-Azusa Scale*, Callier Center for Communication Disorders, 1974, 9p. \$1.58. Orders should be addressed to: ERIC Document Reproduction Service, P.O. Box 190, Arlington, Virginia 22210.

### Attitudes Toward Blindness

**Insurance Discrimination Against the Blind**, by Ted Young. *At Liberty* (Liberty Alliance of the Blind, Inc., 2813 North Lee Street, Philadelphia, Pennsylvania 19134), Vol. 5, No. 1, March 1975, pp. 1-5. Report on hearings held by the Pennsylvania Department of Insurance on the subject of insurance discrimination. Representatives from the Pennsylvania Federation of the Blind produced evidence attributing to several major insurance companies discriminatory practices with regard to blind persons. According to the testimony presented, cover-



age was often denied, or special criteria applied, for life insurance, accidental death benefits, disability and health insurance.

## Biography

**Practicing Law Blind**, by Martin A. Reynolds. *American Bar Association Journal* (American Bar Association, 1155 East 60th Street, Chicago, Illinois 60637), Vol. 61, April 1975, pp. 480-481. Interview with Philip E. Pofcher, blind lawyer practicing in Boston. He is president of the American Blind Lawyers' Association, an organization designed to provide a forum for discussion of some of the problems—and solutions—encountered by blind lawyers and law students, and to disseminate information regarding opportunities in private and corporate practice and federal employment.

## Braille

**Louis Braille Memorial Year—1975; How Does It Affect Us?** *Focus* (Dominion Association of the Blind, Inc., 3 Lauriston Avenue, Remeura, Auckland, 5, New Zealand), March 1975, pp. 33, 37, 39, 41, 43. This article presents an overview of braille usage in 1975, the 150th anniversary of the invention of the braille code. Toward the goal of international standardization of braille notation, the All Russia Society of the Blind has recently completed a unification of mathematical and scientific codes. New Zealand and Australia have expanded local braille production, and hope to standardize codes in Austral-Asia.

## Causes of Blindness

**Blindness from Glaucoma**, by Rita Hiller and Harold A. Kahn. *American Journal of Ophthalmology* (Ophthalmic Publishing Company, 233 East Ontario Street, Chicago, Illinois 60611), Vol. 80, No. 1, July 1975, pp. 62-69. Using data from the Model Reporting Area for Blindness Statistics, the authors review the incidence of glaucoma in relation to such factors as age, race, and sex. The evidence suggests that risk of blindness from glaucoma is greater for nonwhites than for whites, is slightly higher for men than for women, increases rapidly with age, and that the incidence of glaucoma has remained stationary. Requests for reprints should be addressed to: R. Hiller, Office of Biometry and Epidemiology, National Eye Institute, National Institutes of Health, Building 31, Room 6A-18, Bethesda, Maryland 20014.

## Early Childhood

**Get A Wiggle On**, by Sherry Raynor and Richard Drouillard. Edited by Lou Alonso. Ingham Intermediate School District (2630 West Howell Road, Mason, Michigan 48854), 1975, 77p. Ms. Raynor is director of the Infant Program for the Visually Impaired, Ingham I.S.D., and Mr. Drouillard is a mobility specialist, Oakland I.S.D. The booklet is illustrated with cartoon-style drawings and is written in the first person from the viewpoint of a blind infant. It is intended as a guide for persons in contact with blind or visually impaired infants. A full-length review appeared in the January, 1976 issue of the *New Outlook*.

## Education

### Manual for a Work-Experience Program.

The Oak Hill School (The Connecticut Institute for the Blind, 120 Holcomb Street, Hartford, Connecticut 06112), August 1970, 126p. \$3.64. The manual covers student evaluation and counseling procedures used in determining, usually prior to entry into ninth grade, what type of vocational rehabilitation experience the student should enter. Subsequent sections outline specialty (business education, industrial education) and core curricula, on- and off-campus job placements incorporating office, maintenance, kitchen, or library skills, and training objectives, in terms of both vocational skills and personal management abilities.

## Partially Sighted

**Analysis of 85 Subnormal Vision Cases**, by Satya B. Verma. *Optometric Weekly* (Professional Press, Inc., 101 East Ontario Street, Chicago, Illinois 60611), Vol. 66, No. 37, October 23, 1975, pp. 1019-1026. Study of 85 patients selected at random at the low vision clinic of the School of Optometry, University of California, Berkeley. The population was assessed to determine incidence in various age groups, causes of low vision, and types of visual aids prescribed.

**A Singular View; The Art of Seeing With One Eye**, by Frank B. Brady. Medical Economics Company (550 Kinderkamack Road, Oradell, New Jersey 07649), 1972, 104p. \$10.00. Written by a pilot who lost one eye as the result of a midair collision, the book serves as a practical manual for those adjusting to the recent loss of an eye. Emotional adjustment, as well as methods for adapting to monocular vision in everyday activities, including sports and driving, are described.

## Prevention of Blindness

**Prevention of Blindness in Mentally Retarded Children**, by Mette Warburg. *The Sight-Saving Review* (National Society for the Prevention of Blindness, Inc., 79 Madison Avenue, New York, New York 10016), Vol. 44, No. 4, Winter 1974-75, pp. 165-170. Paper presented at the 1974 Conference of the International Association for Prevention of Blindness, Paris, May 24-25, 1974. Report on a study undertaken in Denmark investigating the etiology of blindness in 201 mentally retarded blind children. Recommended preventive measures for the future include ophthalmogenetic counseling, prevention of prenatal rubella and toxo-plasmosis, intensive treatment of postnatal infections, and further research into causes and treatment of diseases of premature infants and their mothers.

## Recreation

**Champions Before They Tee Off**, by Richard Gosswiller. *The Lion* (Lions International, York & Cermak Roads, Oak Brook, Illinois 60521), Vol. 58, No. 5, November 1975, pp. 20-23. The 30th National Blind Golfers Tournament was held at Belmont Country Club near Toledo, Ohio, June 14-17, 1975, with sponsorship from the Ohio Lions District 13-A. To be

eligible, a golfer must be completely blind and must have filed a score of below 120, attested to by a professional. An athletic competition and charity benefit, the Tournament also included a celebrity round and banquet, highlighted this year by such luminaries as Bob Hope and Bill Cosby.

## Sensory Aids

**Evaluation of Closed-Circuit Television as an Optical Aid for the Low-Vision Patient**, by Gerald E. Fonda, Henry Thomas and Ronald N. Schnur. *Transactions of the American Academy of Ophthalmology and Otolaryngology* (15 Second Street, S.W., Rochester, Minnesota 55901), Vol. 70, May-June 1975, pp. 468-480. Report on a study, sponsored by Seeing Eye, Inc., Morristown, New Jersey, to evaluate closed-circuit television as an optical aid for the low-vision patient in preference, or as a supplement, to other visual aids (such as spectacles or hand-held magnifiers). In 15 of 75 patients participating, an increase in reading speed or reading ease was marked enough to warrant recommendation of the CCTV; the younger, highly motivated patients adapted most easily to this device. Requests for reprints should be addressed to: Dr. Gerald Fonda, Low-Vision Rehabilitation Service, St. Barnabas Medical Center, Old Short Hills Road, Livingston, New Jersey 07039.

## ADDITIONAL LISTINGS

*A classified listing of books, articles, directories, pamphlets, and other material of interest to the readers of the New Outlook for the Blind, prepared by the editors. Please write to the source listed in each entry if copies or more information is desired; the materials are not available from the New Outlook or the American Foundation for the Blind.*

## Attitudes and Adjustment

**Adopting a Retarded Child: One Family's Experience**, by Patricia J. Kravik. *Children Today*, (Office of Child Development, DHEW, 400 6th Street, S.W., Room 4117, Donohoe Building, Washington, D.C. 20201), September-October, 1975, pp. 17-21. The adoptive mother of a mentally retarded child relates the problems and joys of raising her young son, and the whole family's efforts at helping him to achieve his full potential.

## Braille, Large Type and Recorded Materials

**The Sounds of Black Heritage**. Sylvestre C. Watkins Company (11372 Links Drive, Reston, Virginia 22090). \$12.00. A six-cassette series about the history of black Americans.

## Career Education

**CIS: A New Dimension for Organizing Career Information Resources**, by Phyllis Stowers. *Occupational Outlook Quarterly*, (available from Superintendent of Documents, U.S. Printing Office, Washington,

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D.C. 20402), Fall 1975, Vol. 19, No. 3, pp. 12-17. Describes the Career Information System (CIS), developed by the Appalachia Educational Laboratory. The system utilizes the worker trait group arrangement for matching qualifications and interests to specific groupings of occupations.

## Counseling

**Avocational Activities for the Handicapped: A Handbook for Avocational Counseling**, by R.P. Overs, E. O'Connor, and B. DeMarco. Charles C Thomas (301-27 E. Lawrence Avenue, Springfield, Illinois 62717), [1975], \$9.95. Designed for the practicing counselor, this handbook is a catalog of avocational activities modeled on the *Dictionary of Occupational Titles*. It is organized so that the counselor can find activities that individuals with specific handicaps can do easily or with some modification.

**The Disabled and Their Parents: A Counseling Challenge**, by Leo Buscaglia. Charles B. Slack, Inc. (6900 Grove Road, Thorofare, New Jersey 08086), 1975. \$8.95. In this book the author challenges doctors, counselors, psychologists, educators and rehabilitation teachers to become more aware of the special needs of disabled persons and their families.

## Education

**Dialogue on American Education**. Media/West (P.O. Box 92999, Los Angeles, Ca. 90009), 1975. A four-cassette series, \$36.50. Two renowned educators, Dr. John Goodland and Dr. Ralph W. Tyler, discuss such topics as the condition of schools today, school organization and reform, curriculum development, and future directions in education.

## Fund Raising

**Truth in Giving: The Congressional Challenge**, by Eugene Goldman. *Channels*, (National Public Relations Council of Health and Welfare Services, 815 Second Avenue, New York, N.Y. 10017), October, 1975. Because of the abuses of a small number of charitable organizations some members of Congress are challenging the traditional freedom of charities. This article summarizes the implications of proposed Congressional bills dealing with the conduct of fund raising, public relations, and management in charitable organizations.

**Revenue Sharing: Source of More Program Funds for the Disabled and Others**, by Paula Hammer and Thomas M. Uhlman. *The Social and Rehabilitation Record*, (SRS/HEW, Room 5327 MES Building, Washington, D.C. 20201), July-August 1975, Vol. 2, No. 6, pp. 28-32. The State and Local Fiscal Assistance Act (P.L. 92-512), more commonly known as the General Revenue Sharing Act, became law in 1972. It outlines a five-year program which allows \$30.2 billion of Federal revenue to be returned to state and local governments for locally determined allocation. This article explains how community organizations for disabled persons can go about receiving a portion of this revenue to advance their services.

## Genetic Counseling

**A Perfect Baby**, by Virginia Appgar and Joan Beck. *Parents' Magazine*, (80 New Bridge Road, Bergenfield, N.J. 07621), November 1975, pp. 55-59. A general introduction for parents to genetic counseling and prenatal care.

**Genetic Counseling for Defective Parents—The Danger of Knowing Too Much**, by Richard Restak. *Psychology Today*, (One Park Avenue, New York, N.Y. 10016), September 1975, Vol. 9, No. 4, pp. 21-23, 88, 92-93. Amniocentesis and other sophisticated techniques have opened the way for in-depth genetic counseling. The technology, unfortunately, is more sophisticated than the knowledge it provides. Parents with defective genes are faced with such emotion-laden problems as abortion, bearing a handicapped child, and, in some cases, sterilization. The author feels that genetic information has profound implications for the future in our attitudes toward handicapped persons and giving birth to only "perfect" children.

## Legislation

**It's Time That Teachers Be Heard On Impending Copyright Legislation**, by Bernard J. Freitag. *Today's Education* (National Education Association, 1201 16th Street, N.W., Washington, D.C. 20036), September-October 1975, Vol. 64, No. 3, pp. 65, 91-92. Teaching is no longer limited to a single textbook, but includes the use of excerpts from all sorts of written, recorded, and graphic materials. If pending legislation HR 2223 is passed as presently worded many of the educational practices that teachers now employ will be almost impossible and legally questionable. The author recommends writing a clause into HR 2223 stipulating "that nonprofit use of a portion of a copy-righted work for non-commercial teaching, scholarship, or research is not an infringement of copyright."

## Low Vision

**Some Characteristics of the Electronic Magnification System**, by Charles B. Margach, Robert A. Reynolds, and Dennis J. Wallace. *Optical Journal and Review of Optometry*, (P.O. Box 2080, Radnor, Pennsylvania 19089), August 1, 1975, Vol. 112, No. 15, pp. 16-20. This article attempts to evaluate the effectiveness of close-circuit television in terms of the total magnification received and how that relates to the needs of persons with low vision.

## Medical Sciences

**Physiology of Color Vision and the Pathological Changes in Reversible Color Blindness, a Deficiency Disease of the Retina**, by Louis F. Raymond. *Annals of Ophthalmology*, April 1975, Vol. 7, No. 4, pp. 532-534. (Reprints available from the author, 121 W. Greenbrook Road, P.O. Box 73, Caldwell, New Jersey 07006.) Some forms of color blindness can be corrected. The author explains his treatment in cases

of color blindness and presents his theory that reversible color blindness is due to immunologic or autosensitivity disease.

## Pamphlets

**Stop Parents: Do You Know the Early Warning Signs**. Consortium of State Departments of Education in the Appalachian Region (P.O. Box 1925, Charleston, West Virginia 25325). \$20.00 per 1000 copies. This pamphlet is designed to alert parents to the warning signs of handicapping conditions in preschool children. Organizations ordering the pamphlet can arrange to have a message printed on the pamphlet free of charge.

## Professional Education

**Higher Education and the Social Professions**, edited by Henry M. Barlow. The College of Social Professions, (University of Kentucky, Lexington, Kentucky 40405), 1974. 216 p. The central theme of the papers in this book is the challenge presented to higher education institutions by the rapid pace of social change.

**A Guide to Theses and Dissertations: An Annotated, International Bibliography of Bibliographies**, by Michael M. Reynolds. Gale Research Company, (Book Tower, Detroit, Michigan 48226), 1975. \$35. 599 p. A bibliography retrospective from 1973, listing foreign and American theses and dissertations in the social sciences, humanities, and sciences.

## Research and Education

**On Professing: Teaching and Researching**, by Oliver P. Kolstoe. *Today's Education* (National Education Association, 1201 16th Street, N.W., Washington, D.C. 20036), September-October 1975, Vol. 64, No. 3 pp. 80-83, 85-86. This article calls for the integration of teaching and researching in the work of college professors. The author gives tips on how to be effective in both.

**Evaluation: An Introduction to Research Design**, by Moursand Monterey. Brooks/Cole Publishing Co., (540 Abrego Street, Monterey, Ca. 93940), 1973. 153 p. \$3.95. An introduction to evaluation research for undergraduate students of the social sciences.

## Social Work

**Need for Adaption**, Manuel Carballo. *World Health*, (World Health Organization, Avenue Appia, 1211 Geneva 27, Switzerland), August-September 1975, pp. 34-38. The universal transition from an extended to a nuclear family structure is having a profound impact on child care, the role of women, and care of the aged. This article discusses the ramifications of these changes in planning health and social services.

## Statistical Surveys

**Income of the Newly Disabled: Survey of Recently Disabled Adults**, by Phillip Frohlich. *Social Security Bulletin*, (avail-



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able from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402), September 1975, Vol. 38, No. 9, pp. 3-18. According to a 1971 survey conducted by the Social Security Administration, the income of recently disabled persons tends to decrease in proportion to the severity of their disability. The survey results also showed that earnings are by far the most important source of income for this group, with public income-maintenance as the second most common source.

## Visual Perception

**Recombination Procedure as a Tool for the Study of Visual Perception**, edited by Robert B. Welch. Special issue of *Perception* (Pion Limited, 207 Brondesbury Park,

London NW2 5JN, England), 1974, Vol. 3, No. 4. Based on the proceedings of a conference held at the University of Kansas, November 15-17, 1973, this report examines current research using the "recombination procedure," the most common example being the optical rearrangement of visual space.

**Defects of the Visual System Can Cause Learning Disabilities**, by William Smith. *Optical Journal and Review of Optometry*, (P.O. Box 2080, Radnor, Pa. 19089), Vol. 112, No. 20, pp. 35-38. The author views the learning problems associated with such disabilities as dyslexia as a "team problem," involving education, psychology, ophthalmology, and neurology. He cites the first step in the team effort as eliminating the visuo-perceptual defect.

## Vocational Rehabilitation

**Specific Training for Job Placement**, by Jeffrey B. Lake. *Journal of Rehabilitation* (National Rehabilitation Association, 1522 K Street, N.W., Washington, D.C. 20005), Vol. 41, No. 4, July 1975, pp. 20-21. The author recommends job-seeking skills training programs, concentrating on such areas as job interviews, filling out applications, finding transportation to employment, and the available resources for finding employment.

## Volunteers

**Dot Writing**, by Janet Wise. Janet Wise/Publisher (155 East 38th Street, New York, N.Y. 10016). \$4.50. A manual of English braille for the volunteer transcriber.

# News in Brief

■ The Georgia Department of Human Resources has developed a state-wide tie-line system to provide an information and referral network for citizens. Georgians needing information from any state or private agency can call directly on the toll-free WATS line into the tie-line center in Atlanta. They can then receive the information directly from the tie-line service or be connected free of charge to the appropriate agency.

Deaf persons can use the tie-line system through a specially equipped teletypewriter (TTY). The TTY can be hooked up to the deaf person's telephone so he can type his question to the tie-line counselor. The counselor then types out the response on the machine and that message is typed onto the deaf person's tele-typewriter at the same time.

"All of us know about the frustrations of trying to get information from large government agencies," says Tie-Line director Richard Harris. "You're given one number after another to call and all seem to be the wrong ones. Many people just give up. I really believe the Tie-Line has made a difference."

■ Three blind information specialists who work for the U.S. Civil Service Commission are taking part in a six-month demonstration project to determine the feasibility of synthesized speech for computer data retrieval. The electronic speech system, developed at Michigan State University's Artificial Language Laboratory, is being evaluated in this project by Arkansas Enterprises for the Blind, in cooperation with the Civil Service Commission. The demonstration test began in January 1976 and will conclude June 1976; the results should be available by November 1976.

■ The Illinois Association of Orientation and Mobility Specialists (IAOMS) was established September 27, 1975, at an organizational meeting held at Hines Veterans Administration Hospital, Chicago. IAOMS originated with 31 charter mem-

bers, representing state universities, federal and state agencies, and regional and local public schools. The new mobility group, which is located at 145 Fisk Avenue, DeKalb, Illinois 60115, has elected Jann Floyd president and Robert Gockman vice president.

■ Hadley School for the Blind (700 Elm Street, Winnetka, Illinois 60093) is offering a free correspondence course, "Introduction to Business Management." The course, which is available in braille or cassette form, presents the fundamentals of marketing, advertising, production, accounting, data processing, and law.

■ University of Kentucky psychologist John Tringo surveyed 455 college students and rehabilitation workers to rank 21 disabilities as part of a study of society's attitudes toward handicapped people. He found that hidden handicaps like arthritis, asthma, and diabetes were generally more acceptable. Mental illness, alcoholism, and mental retardation were the least accepted. Blindness ranked 15th on the list of least tolerable disabilities.

■ In the United Kingdom there are approximately 120,000 blind people, with 12,000 names being added to the register each year. According to the Royal National Institute for the Blind's 1975 annual report, *They Can If They Think They Can*, over 71 percent of the blind people in the UK are over 65 years of age; more than 23,000 have an additional handicap; and about 200 children are born each year with severe visual defects.

■ Oregon presently has one of the most comprehensive career counseling systems in the country. That state is utilizing a computerized Career Information System developed four years ago with Federal grants. It contains specific statewide information on 228 job titles that compose 95 percent of the occupations held by the state labor force. The system, which is now being financed by fees from school districts, colleges, and social agencies, is expected to serve over 175,000 people this year. Iowa, Washington, and Tennessee have recently begun similar programs, and the U.S. Department of Labor has granted

eight states \$300,000 a year, for four years, to begin comparable systems.

■ The American Council of the Blind (ACB) has sued the Secretary of Health, Education and Welfare, charging that HEW has violated the rights of millions of handicapped children by failing to implement the Education for the Handicapped Act passed by Congress August 21, 1974. This Act requires the states, as a pre-condition to receiving federal funds, to identify, locate and evaluate all handicapped children so that they can be provided an adequate education. The identification process is to be conducted in accordance with regulations issued by HEW to protect the privacy of the children.

ACB charges that HEW has not yet issued the privacy regulations. Under the law, the HEW regulations were supposed to be out by April 18, 1975. Many states have not begun the identification and evaluation process because the regulations have not been issued. Other states are beginning the process without protecting the children's privacy, which leaves them open for the stigma of being labeled as educationally handicapped.

■ The visually impaired or blind diabetic can correctly and consistently load their own disposable syringes with the *Insul-gage* loading guides. A separate, precalibrated guide is made for each dosage size, with nothing to set or adjust. The dosage size is marked on each gage in either ink-print, braille, or raised, sharp-edged numbers. Gages are precision made from durable plastic, thoroughly tested, and currently being used by many agencies serving visually impaired persons. *Insulgage* is available by direct mail only. For further information contact: Meditec, Inc., 9485 E. Orchard Drive, Dept. N-1, Englewood, Colorado 80110.

■ The Sacramento Society for the Blind, (2750 24th Street, Sacramento, California 95818), opened a new, multidisciplinary low vision clinic in October, 1975.

■ The United Nations has created an Information Exchange System on Aging to provide policy makers with data for developing programs and services for their aging



population. The system will serve as a clearing-house and referral system for indexed materials rather than as a library. One of the first projects of the system is the compilation of a thesaurus of key terms.

■ The Industrial Home for the Blind (2020 Jericho Turnpike, New Hyde Park, New York 11040), began publication of a new newsletter, *Ti-Line*, in September, 1975. The purpose of the newsletter is to report the progress of IHB's switchboard training program for visually handicapped persons.

■ A memorial tablet to Lord Ian Fraser, the late chairman of St. Dunstan's, is presently being designed. The tablet will be placed in the Cloisters of Westminster Abbey.

■ The Blind Mobility Research Unit (University of Nottingham, Nottingham NG7 2RD, England), has developed a kit for making tactual maps. The kit, priced at £5, contains base sheets for the construction of the master, point, line and area symbols, and additional materials to prepare the master for vacuum forming. A map makers Handbook, which describes the techniques of manufacturing maps, lists the required materials and gives addresses for suppliers, is available separately for 50 pence.

■ Individual subscriptions to the following magazines are now available from the American Printing House for the Blind, 1839 Frankfort Avenue, P.O. Box 6435, Louisville, Kentucky 40206: *American Heritage*, *Historic Preservation*, *Changing Times*, *Ellery Queen's Mystery Magazine*, *National Geographic*, *Newsweek Talking Magazine*, *Reader's Digest*, *Saturday Review/World*, and *Stereo Review*.

■ The first National Convention for the Deaf-Blind was held in August 1975 at Highbrook Lodge, Ohio. The convention was jointly sponsored by the Cleveland Society for the Blind, the National Association for the Deaf-Blind, and the National Center for Deaf-Blind Youths and Adults. Thirty-eight deaf-blind delegates from 15 states, the District of Columbia and Canada attended the five-day conference. The program consisted of discussions on rehabilitation, social security, housing, aids and devices, recreation, and independent living. Plans are currently underway for organizing the next national convention.

■ The entire March 1976 issue of the *World Health Journal*, the official publication of the United Nation's World Health Organization, will be devoted to the prevention of blindness. A limited number of copies will be printed in English braille, and can be purchased for \$.50 each from the Royal Commonwealth Society for the Blind (Commonwealth House, Heath Road, Haywards Heath, Sussex RH16 3AZ, England).

■ On January 5, 1976 a new law became effective in Ohio which allows licensed drivers to indicate their desire to have body organs used for transplantation and research at their death. A simple form on the back of the driver's license can be completed by persons 18 years of age and over to make the pledge.

■ Onchocerciasis, "river blindness," is now thought to affect a far greater number of people than previously believed. The World Health Organization's Expert Committee on Onchocerciasis, which held a five-day conference in November 1975, said that the previous figure of 20 million people affected by the disease is a gross understatement. For instance, in West Africa, using a more sensitive diagnostic test, it was discovered that the number of cases was double the original estimation—500,000 cases to one million.

## APPOINTMENTS

■ New York State Department of Social Services: **David H. Gaskell**, associated commissioner for income maintenance.

■ Overbrook School for the Blind: **Joseph J. Kerr**, director.

■ Arkansas State Office for the Blind and Visually Impaired: **Louis Pines, Jr.**, director.

■ Library of Congress, Division for the Blind and Physically Handicapped: **Paul J. Flannery**, assistant chief for materials development.

## AWARDS

■ Special Citation from the U.S. House of Representatives: **Alice S. Cawley**, president, Pennsylvania Association of the Blind.

## RETIREMENTS

■ Overbrook School for the Blind: **David W. Olson**, director.

## COMING EVENTS

### February

**24-26** Association of Rehabilitation Facilities, Seminar on Developing an Integrated Management System, Birmingham, Alabama.

**29-March 3** Council on Social Work Education, Annual Program Meeting, Philadelphia.

### March

**3-7** American Orthopsychiatric Association, Annual Meeting, Atlanta.

**28-April 2** Second International Congress on Prosthetics Techniques and Functional Rehabilitation, Cannes, France.

### April

**4-9** Council for Exceptional Children, 54th Annual International Convention, Chicago.

**5-9** European Congress of Ophthalmology, Hamburg, Germany.

**9-13** American Occupational Therapy Association, Mid-Year Meeting, Atlanta.

### May

**11-12** National Braille Association, Regional Meeting and Workshop, Boston.

**14-16** American Ophthalmological Society, Kilauea, Hawaii.

**16-20** American Federation of Labor and Congress of Industrial Organizations, 18th National Conference on Community Services, Washington, D.C.

## June

**13-16** National Conference on Social Welfare, 103rd Annual Forum, Washington, D.C.

**13-18** XIII World Rehabilitation Council, Tel Aviv, Israel.

**26-July 1** American Medical Association, Annual Convention, Dallas.

**27-July 2** American Physical Therapy Association, New Orleans.

**28-July 2** American Home Economics Association, Annual Meeting, Minneapolis, Minn.

## September

**12-16** American Academy of Ophthalmology and Otolaryngology, Las Vegas.

## October

**27-30** Western Regional Conference of the American Association of Workers for the Blind, Tucson, Arizona.

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# THE NEW FOR THE BLIND

# Outlook

MARCH  
1976  
Volume 70  
Number 3

**Orientation and Mobility in the Urban Environment: A Form of Future Shock**





# THE NEW FOR THE BLIND Outlook

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# Orientation and Mobility in the Urban Environment: A Form of 'Future Shock'

**JUDITH E. RUTBERG, M.ED.**

*Ms. Rutberg is coordinating the graduate Inner City Orientation and Mobility program at Hunter College, New York City.*

■ Independent travel in an urban environment presents a variety of external and internal pressures which cause immeasurable stress, requiring the development of individual coping methods. The processes of teaching and learning non-visual spatial awareness and safe movement are a form of "future shock" which Alvin Toffler, author of a book of the same title, describes as "the shattering stress and disorientation that we induce in individuals by subjecting them to too much change in too short a time" (1970, p. 2). How does this apply to an organized sequence of processes, gradually moving from simple to complex, such as those found in the process of both teaching and learning orientation and mobility skills?

The urban environment provides all visitors, commuters and residents with an overabundance of visual, auditory, tactual, and olfactory stimuli. We are bombarded with sensory input on all levels and require continued selection and attention to all variables in order to process the information at hand. It is not unusual to hear a sighted person comment, "There is so much going on. I don't know where to look first." Due to the advantage of the visual sense, the sighted person will have less difficulty assimilating and selecting those stimuli which require immediate attention and action. When visual functioning is impaired or absent, the selection of cues and sensory data becomes a slower and more difficult process.

**THE URBAN ENVIRONMENT** Identification of some of the elements common to urban environments, particularly those similar to the New York City setting with which this author is most familiar, may help to define the situation. During a recent visit to New York City, a student in one of the graduate orientation and mobility programs was overheard to say: "New York City was just as I expected, it's all concrete." This may appear to be a somewhat superficial description of the situation, but none the less it does serve to describe one of the outstanding physical elements of an urban environment. One rarely finds trees, grass, hedges, private homes on vast expanses of open acreage, quiet streets, absence of sidewalks, and relative permanence of homes and residents in today's urban setting. The city environment is composed of tall buildings adjoining each other, competitive stores and businesses within a few blocks of each other, concrete sidewalks, hundreds of pedestrians hustling to make their next appointments, and heavily trafficked streets and intersections.

## **Mass Transit**

In addition to the variables found while on ground level, certain urban environments contain subterranean systems of transportation. These subway and mass transit systems provide additional dimensions of sensory stimuli, physical danger and the need for development of certain personal coping methods. A typical New York City subway platform consists of a walking platform with an approximate ten-foot drop to the subway tracks on either one or both sides of the platform. Hundreds of people may mass together or attempt to scurry along this platform at any particular time. Trains move quickly through the station; some stopping for only a few minutes to load and unload passengers, others continuing to move through the station at a speed of approximately 20 miles per hour.

**TRANSIENCE** Coupled with and directly related to the overabundance of stimuli and the overstimulation of participants in the urban environment is the concept, coined by

**Abstract:** *The urban environment creates an atmosphere of external and internal pressures, which causes immeasurable stress in a blind person attempting independent travel. The transitory nature of relationships and landmarks in an urban environment, as well as the overabundance of sensory stimulation, produces a condition the author calls, "future shock."*



**“The blind traveler may be thoroughly familiar with a specific route to be traveled, but he or she can never be guaranteed that the ‘permanent’ landmarks or clues along the way will remain in their fixed position. . . . The end result of these unpredictable events is the increase of internal stress. . . .”**

Toffler as “transience.” “Transience is the new ‘temporari-ness’ in everyday life. It results in a mood, a feeling of impermanence” (Toffler, 1970, p. 45). There is constant change in the urban environment. Buildings, businesses, and other environmental “fixtures” are continually moving, being replaced, reconstructed, or vacated. It is difficult if not impossible to plan a good and permanent training area for mobility in New York City. Orientation and mobility instructors learn quickly that, although the intersection of Park Avenue and 64th Street was a good locale to teach initial traffic light crossings yesterday, it may be the site of digging, construction or barricades today! The concept of transience is the concept of “here today, gone tomorrow.” Consequently, orientation and mobility specialists must always be prepared with a number of alternate training sites and routes, particularly when introducing the visually impaired person to urban travel.

In order to further illustrate this concept of transience, let me relate an incident that occurred with a particular client during a mobility lesson in New York City. The client was a 45-year-old, relatively intelligent, totally blind man. He had lost his vision as an adult and thus maintained an excellent visual memory and a good sense of direction. After several months of training in the New York City area, both the client and instructor agreed that he (the client) was capable of independent foot travel. In order to assess his ability and to aid him in developing self confidence, the client was asked to locate a nearby objective while the instructor remained inside the training agency. More specifically, the client was asked to take a pair of the instructor’s shoes to a specific shoe repair shop within three blocks of the agency and wait for them to be repaired before returning to the agency.

Prior to beginning his trip, the client had correctly estimated that the trip would take him approximately 35-40 minutes to complete. After 60 minutes had passed, the instructor began to get anxious and had begun to discuss alternate means of locating the student with other mobility personnel at the agency. A few minutes later, the blind student returned carrying the repaired shoes and appearing rather pleased with his success. When questioned as to the length of his trip, the student explained that the designated shoe store, which had been open for business the previous day, had moved! The student, strongly motivated to complete the task at hand, made the necessary quick adaptation to urban life and solicited pedestrian aid to locate another shoe repair shop. Once he was aware of the precise location of the repair shop, the student was able to retrace his steps and return to the training agency which remained in its fixed location.

## **FLEETING RELATIONSHIPS**

Transience and impermanence are not only demonstrated in the short and ever changing existence of objects, but also in the short durational relationships among people. As businesses move and change locale, people are constantly changing their place of business and/or residence. Consequently in a large urban environment, due to the large numbers of persons and to the constant change in their geographical positions, it is unlikely that a blind person will be offered pedestrian assistance by the same passer-by more than once in the former’s travel experience. As a result, blind travelers in an urban environment may find it necessary to educate a greater number of uniformed sighted guides with greater frequency than an individual traveling in a residential setting.

At the same time, however, blind persons traveling in a congested urban area have a much greater selection of pedestrians from which to receive assistance at any given moment. It is not unusual in certain areas of New York City to observe at least four or five pedestrians offer assistance to one blind person waiting to cross the street in the time period of one 60-second traffic light cycle! The very nature of the urban setting greatly diminishes the likelihood of forming long lasting social relationships between the sighted pedestrian and the blind traveler. Each person in this two party interaction performs his “assigned” role for the moment. In most cases, once the task at hand, i.e., assistance across a street, location of a store or residence, etc., has been completed, so ends the relationship.

## **Types of Relationships**

The length and types of human relationships as illustrated above is discussed by Toffler in this short excerpt from his text:

“... the decline in the *average* duration of human relationships is a likely corollary of the increase in the number of such relationships. The average urban individual today probably comes into contact with more people in a week than the feudal villager did in a year, perhaps even a lifetime. The villager’s ties with other people no doubt included some transient relationships, but most of the people he knew were the same throughout his life. The urban man may have a core group of people with whom his interactions are sustained over long periods of time, but he also interacts with hundreds, perhaps thousands of people whom he may see only once or twice and who then vanish into anonymity” (Toffler, 1970, p. 100).

## **FEAR OF DISORIENTATION**

The final element affecting an individual who is living and traveling in the urban environment is one which might succinctly be labeled “fear.” The excessive amount of sensory stimulation from without, as well as the accelerated change common to urban environments, presents a situation of unpredictability. The blind traveler may be thoroughly familiar with a specific route to be traveled, but he or she can never be guaranteed that the “permanent” landmarks or clues along the way will remain in their fixed position. The individual who makes use of the subway on a daily basis may find that his particular train has been delayed or rerouted causing the traveler to adjust his schedule, reorient his particular position in space, and to react accordingly. The end result of these unpredictable events is the increase of internal stress and anxiety, coupled with the fear of “what will I encounter next?”

In addition to the fear of becoming disoriented or delayed, the blind person (even the most fluid of travelers) carries with him the fear of potential physical danger. Physical danger can occur from both the absence or presence of physical objects in one’s path of travel, as well as from



various human elements in the environment. Familiarity with a situation tends to decrease such feelings of helplessness and anxiety. In an urban environment where all change is accelerated, familiarity with persons and things becomes increasingly difficult. As a result we notice a blind person, when traveling through an unfamiliar and potentially dangerous situation, demonstrating slower body movements, increased facial and body rigidity, and overall tension. Toffler describes the physical reaction to change in the following excerpt:

“What happens when something in our environment is altered? All of us are constantly bathed in a shower of signals from our environment—visual, auditory, tactile, etc. Most of these come in routine, repetitive patterns. When something changes within the range of our senses, the pattern of signals pouring through our sensory channels into our nervous system is modified. . . .

“Significantly, when some new set of stimuli hits us, both body and brain know almost instantly that they *are* new. The change may be no more than a flash of color seen out of the corner of an eye. It may be that a loved one brushing us tenderly with the fingertips momentarily hesitates. Whatever the change, an enormous amount of physical machinery comes into play.

“... The change in stimuli triggers what experimental psychologists call an ‘orientation response.’ The orientation response . . . is a complex, even massive bodily operation. The pupils of the eye dilate. Photochemical changes occur in the retina. Our hearing becomes momentarily more acute. We involuntarily use our muscles to direct our sense organs toward the incoming stimuli—we lean toward the sound, for example. . . . Our general muscle tone rises. There are changes in our pattern of brain waves. Our fingers and toes grow cold as the veins and arteries in them constrict. Our palms sweat. Blood rushes to the head. Our breathing and heart rate alter” (Toffler, 1970, p. 335).

**Adaptation**

It can be agreed that the greater the proficiency of the blind traveler, the less the amount of tension and anxiety experienced when encountering potentially dangerous, unfamiliar, and consequently unpredictable, situations. We are all able to adapt to change and stress. However, the rate and method of adaptation varies with the situation and the particular individual. The proficient blind traveler passing through an unfamiliar construction site, for example, is able to minimize some risks and control certain aspects of his situation, i.e., adequate cane coverage, attention to all auditory and tactile stimuli, and maintenance of his position in space. However, the unpredictability and potential danger of objects falling from above and the unsteady surface underfoot make certain elements of the situation uncontrollable. Consequently, the blind person may feel momentarily helpless and afraid.

**ACCEPTING PEDESTRIAN ASSISTANCE** Such feelings as “helplessness” and “fear” manifest themselves in blind persons’ relationships with sighted pedestrians as well. The necessity for sighted assistance becomes overwhelming in some of the situations encountered in the urban environment. At the same time, blind people rarely have the opportunity to become familiar with the persons from whom they request assistance. When a sighted person requires assistance from another sighted person, he has the opportunity to visually appraise the situation *before* making verbal and/or physical contact. Due to the large numbers of persons in any given urban environment, it is possible for the sighted person to choose the individual from whom he wishes to request assistance. When vision is absent or greatly diminished, the ability to choose one’s “assistant” decreases

accordingly. A blind person requires close, if not *physical* contact to determine and judge the safety of the situation at hand. Coupling this factor with the presence of short durational relationships, thus preventing familiarity and trust, we are faced with a situation where blind persons are fearful of soliciting and accepting pedestrian assistance when it is so often needed.

Orientation and mobility specialists in the New York City area are all too familiar with the partially sighted person who is reluctant or refuses to make use of a cane because it might make him vulnerable for injury from other persons. The situation might be that the partially sighted person realizes the risk that he is facing by not protecting himself adequately from physical danger i.e., falling down steps, inability to visually detect curbs. However, he is often willing to forego this risk by avoiding cane usage for as long a time as possible. It may be that the value placed on being identified as visually impaired, and consequently risking personal injury from another person, is more important than the possibility of injuring oneself due to inadequate protection.

**THE DOG GUIDE AS PROTECTION** The situation presents itself in a slightly different form in the case of the totally blind individual or the person with a minimal amount of residual vision, e.g. light perception, minimal shadow vision. In these cases, the blind person is fully aware that he requires a protective device, e.g. cane for his safety. The person will frequently follow through a course in orientation and mobility with some degree of success. Frequently, however, these same individuals who demonstrate the potential to be good cane travelers and/or have completed their training, apply to dog guide schools for instruction. When questioned as to why they have chosen to travel with a dog guide, a large majority respond by stating, “The dog guide will protect me.” Once again it is demonstrated that the blind person is fearful of the unpredictability, unfamiliarity, and accelerated change of situations, persons and things in the urban environment.

Throughout the text of this article some reference has been made to the particular reactions of blind persons who must live and travel in the urban setting. As a result of excessive sensory stimulation and accelerated change, independent travel in such an environment is stress-producing. There are many totally blind and partially sighted persons who have received orientation and mobility instruction and are capable of safe and efficient independent travel in the urban environment. As a result of various interrelated physical, psychological and sociological factors, these persons have developed adaptive and coping mechanisms which permit them to travel with the least amount of stress and anxiety. At the same time, however, there are many blind persons who have great difficulty adapting to the “future shock” of urban life and consequent independent navigation. One outstanding population group of this sort is the geriatric population. Older persons react more slowly to stimulation and thus the problems of “keeping up the pace” in the urban environment are exaggerated. “Older people are even more likely to react strongly against any further acceleration of change . . . time passes more swiftly for the old” (Toffler, 1970, p. 40).

**VISUALLY IMPAIRED OLDER PERSONS** This author recently had the opportunity to conduct a mobility seminar with a group of approximately 65 visually impaired, urban



**“When the blind person is no longer familiar with his neighbors, the sense of trust is lost and the sense of isolation increased. Consequently, we find a large number of older blind adults who are unable to make the necessary adaptations . . . and remain indoors. . . .”**

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dwelling older persons. All of the participants, most of whom had completed their mobility instruction within the past five years, were asked to describe the degree to which they travel independently and, more specifically, the geographical range of their travel. Results of this seminar can be outlined as such: 1) No more than 15 percent of the group traveled independently within one block of their home. It should be noted that most of the participants lived in their present neighborhoods prior to the onset of blindness. 2) Of those persons who stated that they did travel independently, no more than 5 percent made use of public transportation. 3) Of those persons who made use of public transportation and traveled outside of the immediate four to five block radius of their home, all of them traveled to areas with which they were familiar prior to their loss of vision.

The most glaring result of this informal study was the large percentage of older blind persons who, although equipped with the proper “skills,” chose *not* to travel independently. When asked to explain their reasons for “guided travel,” the majority of the participants stated that they were fearful of, and lacked confidence in, their ability to navigate alone. While only one person felt that she could benefit from additional instruction, the remainder felt that their reluctance to travel alone was a product of their increasing age, additional physical complications, slower body movements and reactions to new stimuli, and consequent fear of physical danger from environmental hazards, e.g. broken sidewalks and unfamiliar persons. Consequently, the majority of the participants agreed that the fault lies not in the particular type of instruction received or in the blind persons themselves, but rather in the present urban setting of quick change and unfamiliarity.

### **Reactions of Older Persons**

In a recent study entitled, “Life Space and the Social Support System of the Inner City Elderly of New York,” the author, Marjorie H. Cantor, discusses the reactions of older persons to life in New York City.

“What specifically, do older people react to about New York City? . . . Most often cited is crime and the general lack of personal safety; followed by comments on deteriorating conditions of the neighborhoods, dirt and noise, and the high cost of living. In addition, the elderly are also often fearful of persons different than themselves—be they of different ethnic background or life styles.

“Their negative feelings, particularly fears about personal safety, are deeply rooted in reality. Over 40 percent of the sample (1552 respondents) report being victims of personal crime at some time in the past ranging from purse-snatching to forcible entry into their homes” (1975, pp. 26-27).

**THE HIGH INCIDENCE OF CHANGE** It is understandable that the higher the incidence of change in a particular neighborhood, the greater the degree of fear faced by its older residents. Many older blind persons who reside in the city environment will remark that their neighborhood has “changed” over the past number of years. Residents and store keepers have moved or died. Consequently new and strange persons move into the neighborhood establishing a situation of unfamiliarity and unpredictability. The older blind person may have ventured a few blocks from home independently when he knew that his neighbors were accessible for assistance. When the blind person is no longer familiar with his neighbors, the sense of trust is lost and isolation increased. Therefore, we find a large number of older blind adults who are unable to make the necessary adaptations for independent travel in the urban setting and remain indoors except for an occasional special outing, when they are picked up and returned to their door.

If adaptation is so difficult and change so intense, why then do so many older persons remain in the urban environment? The respondents in the Cantor study may serve to answer this question.

“First, and foremost, is the fact that most people (especially the old) are more favorably inclined to the place they presently live in—to what is familiar and known; what they can navigate and encompass. But in addition to their sense of rootedness, older people . . . talk about the ease and availability of desired facilities and services, the opportunities for work and a sense of privacy in a big city. City life means having at one’s fingertips most of the services needed and wanted, including both the necessities of life and the special cultural recreational facilities found in a large cosmopolitan city. Thus, the density of people and spread of activities appears to be of great benefit to people as they retire and age” (Cantor, 1975, p. 27).

In order to function as an effective independent traveler in the urban environment, one must possess the necessary protective and orientation skills as well as the capacity to adapt to change as readily as it occurs. Safe and effective travel in the urban environment is a function of “coping.” If blind persons can safely locate their destination, selectively utilizing the sensory stimuli while maintaining some awareness of the impermanence of objects and persons, they have demonstrated the ability to cope. There are many blind persons, however, who have great difficulty in adapting to the situations found in the urban environment.

### **EXPLORING WAYS TO EASE STRESS AND ANXIETY**

We as professionals in the field of rehabilitation must begin to explore means of easing the stress and anxiety in order to make urban travel a feasible goal for a greater number of blind persons. In at least one agency in the New York City area, weekly mobility seminars, consisting of eight to ten blind persons presently receiving orientation and mobility instruction, have been established. The purpose of these sessions is to discuss various successes and difficulties encountered while learning to navigate in the urban environment. These sessions offer group support and encouragement in an attempt to ease the tension felt in this solely individual task. It has been suggested by some that we might expect a longer orientation and mobility training period for those who will make use of urban environments. Others have suggested a closer tie between the orientation and mobility practitioner and the counselor. Perhaps alternate or additional counseling methods should be established for the potential city traveler.



**Desensitization**

One possible method in the orientation and mobility counseling sessions might be the formal introduction of a therapeutic method called "desensitization" which is utilized by some behavioral psychologists. Simply stated, this process involves gradually exposing an individual (verbally or through slide presentations, auditory symbols, etc.) to certain elements of a fear-producing setting, (e.g. fear of heights) prior to exposing them to the actual situation. This method has been successful with some persons experiencing certain phobias and might, for example, be beneficial for some blind persons, prior to learning independent subway travel.

Whatever the solutions might be, the elements of the urban environment are the elements of modern life and will

be with us for a long time. We must begin to examine and explore the effects of these elements so that independent urban travel is feasible for more than just a select few.

Grateful acknowledgement is expressed to Mr. David Mentasti, presently coordinator of the Blind Services Program, Rehabilitation Institute, Kansas City, Missouri, for his time and effort in offering constructive criticism and helping to organize some of the ideas.

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**Ski for Light**

A ski touring meet for blind people, called "Ski for Light," was held February 1, 1976 in Minneapolis. One hundred blind skiers, from five different countries, participated in the ski event. Prior to the touring meet the blind participants

received a week of instructions and training in cross-country ski touring techniques. During the course of the three-mile race each blind skier was accompanied by a sighted guide who provided verbal descriptions of the terrain. The second meet of its kind in this country, the 1976 "Ski for Light" was designated an official American bicentennial event.



# Stage Development of Blind Children: A Piagetian View

**MILTON GOTTESMAN, PH.D.**

*Dr. Gottesman is with the Department of Psychiatry at Downstate Medical Center, University Hospital, Brooklyn. This paper was presented at the Fifth Invitational Interdisciplinary Seminar, on Piagetian theory and its implications for the helping professions, in Los Angeles, 1975.*

■ There has been a renewed interest in the cognitive processes and development of children over the last several years. Many researchers have attempted to deal with the concomitant theoretical and empirical issues. The most significant source of this resurgence of interest in cognition has been the writings of Jean Piaget and his colleagues. Piaget has provided the most comprehensive analysis to date of the acquisition and development of cognitive structures within a stage theory. Biological maturation and experience and the emphasis on process and product in the attainment of intellectual functioning have resulted in a most unique system of defining cognitive structures. Piaget and his colleagues, to the best of my knowledge, have never conducted studies with groups of blind children; however, at a lecture at Columbia University, Piaget made the following statement: "Blind infants have the great disadvantage of not being able to make the same coordinations in space that normal children are capable of during the first year or two, so that the development of sensory-motor intelligence and the coordination of actions at this level are seriously impeded in blind children. For this reason, we find that there are even greater delays in their development at the level of representational thinking and that language is not sufficient to compensate for the deficiency in the coordination of actions. The delay is made up ultimately, of course, but it is significant and much more considerable than the delay in the development of logic in deaf and dumb children."

The primary focus of this paper is to describe two separate research studies that I have conducted within a Piagetian frame of reference. Secondly, I would like to describe briefly several other Piagetian investigations that have focused also on the development of blind children. My interests are on both the theoretical and experimental levels and phases of practical application. I hope that all of these studies will not only shed some light on the developmental understanding of blind children, and in the formation of more effective modes of modification of existing schema structure, but also stimulate new interests and approaches in understanding Piagetian theory of child development.

**DEFICITS IN DEVELOPMENT OF THE BLIND** In general I concur with Piaget's position that during the sensory-motor stages and representational phases of thinking the blind child manifests some developmental lags in relation to the normally sighted child. The blind will also show some serious deficits in performing various designated tasks at these early levels. These delays, however, can be explained as the result not of total blindness per se but of the younger child's reliance on less sophisticated sensory discriminatory abilities. The older child, performing on the various concrete and formal operational levels, compensates for these delays by increased reliance on the integrative processes of cognitive functioning.

It is interesting to note that, without the benefit of more recent findings, Piaget intuitively stated that these early delays in the blind child's development would be overcome at a later point. However, he did not suggest *how* these delays might be overcome. I am sure that several of us are still unable to explain our findings totally and are still awaiting his guidance.

**CRITERIA FOR SUBJECT SELECTION** A highly significant factor that I have found in conducting research with blind children is the need to clearly and carefully delineate the criteria for population selection. I would like to

**Abstract:** *Gottesman conducted a study of stage development of cognitive processes in blind and sighted children, utilizing the concepts and research techniques of Jean Piaget. The experiments concentrate on haptic perception as a means towards recognizing objects and gaining the concept of mass conservation. Criteria for the careful selection of subjects are delineated, and testing procedures described. Results are expressed in charts of mean score percentages.*



cite several studies that support this viewpoint. Higgins selected a population of 39 congenitally totally blind children drawn from schools for the blind in three major Australian cities. Cromer selected only 12 congenitally blind children from the School for the Blind in London. In my first research study, I located only 15 congenitally blind children in the entire State of New York, and in my second study evaluated 45 congenitally blind nonresidential and residential clients from the States of New York, Connecticut, Pennsylvania, and Delaware. I will elaborate on the process of selection in the section on research design. The strict criteria adhered to in each of these studies were the following: 1) Degree of blindness: totally blind or light perception only. 2) Age at onset of blindness: birth, or very early during the first year of life through removal of optic tumors (retinoblastoma). 3) Absence of other disabilities: no history of psychological, mental, or other physical handicaps.

The presentation is based on two studies that I have conducted and reported: "A Comparative Study of Piaget's Developmental Schema of Sighted Children with That of a Group of Blind Children" (Gottesman, 1971), and "Conservation Development in Blind Children" (Gottesman, 1973). I will attempt to integrate the results, implications, and the significance of both studies into one unified presentation. The paper on haptic perception will be designated as the earlier study, and the paper on conservation development will be designated as the later study.

**Objectives of the Studies**

Before I describe the studies and their findings, several reasons for the initiation of these projects follow: 1) To explore the feasibility of adapting Piagetian research methodology and findings to the study and understanding of blind children; 2) To focus specifically on the comparison of developmental ages and stages of sighted and blind children; 3) To observe similarities and differences between the performance patterns of blind and sighted groups; 4) To evaluate the significance of the role of vision in the achievement of the tasks presented.

The general purpose of both studies was to analyze the development of congenitally blind children in view of their performance on tasks of haptic perception and conservation development. From a theoretical point of view, implicit in Piaget's own definition of haptic perception, "the problem set before the children faces them with two distinct tasks. First, the translation of tactile-kinesthetic perceptions into visual ones. Second, the construction of visual images incorporating the tactile data and the results of exploratory movements" (Piaget & Inhelder, 1948, p. 19). Also at issue is the order of development and the difficulty of topological and Euclidean tasks. On the other hand, conservation (as most widely assumed) requires the realization that certain aspects of an object have been visually altered. Thus the role of vision was considered to be a central importance in the mastery of the tasks involved.

**ORIGINAL STUDIES BY PIAGET AND INHELDER** The study of haptic perception was based on the original study by Jean Piaget and Barbel Inhelder (1948). Children were given a test involving various familiar topological and Euclidean shapes. On the basis of their responses, Piaget and Inhelder categorized the children's identification of the objects in three developmental stages. At Stage I (two to four years of age), the children were able to recognize familiar objects through generalized, rather than

passive manipulation. During the latter part of this stage, topological objects, through which the children could put their fingers, were explored as three-dimensional objects. At Stage II (four to six years of age), the children initiated crude differentiation of rectilinear from curvilinear shapes, but were not yet able to differentiate within these groups. The children, however, began to seek for clues to aid them in identification. During Stage III (six to eight years of age), the children were capable of distinguishing between complex forms through a precise, detailed exploration of objects.

"A child is presented with a number of objects, familiar solids (balls, scissors, etc.), or flat geometrical shapes (square, circle, etc.), and touches or feels around each one without being allowed to see it . . . it must then be named, drawn or pointed out from a collection of visible objects or drawings of them" (Piaget & Inhelder, 1948, p. 18).

**Conservation**

Piaget and Inhelder, in their original study of conservation (1941), tested the conservation of mass, weight, and volume by means of the "sausage" experiments. The purpose of this study was to determine if the child could tell that a quantity remained the same (was conserved) after it changed in appearance. For example, in testing for the conservation of mass, they showed the child two clay balls identical in size, shape, and weight. After the child agreed that the balls contained equal amounts of clay, one of the balls was made into a sausage. Then the researchers asked the child to judge whether or not the ball and the sausage contained the same amount of clay. Piaget and Inhelder also asked the child to predict, while both pieces of clay were shaped as balls, if the amount of clay used would be the same if one ball were made into a sausage, and to explain his judgments and predictions.

Using the sausage experiments to test children from five to twelve years of age, Piaget and Inhelder found that discoveries of conservation followed a regular order that was related to age. The conservation of mass was discovered at ages 9-10; and the conservation of volume was discovered at ages 11-12.

**SUMMARY OF RESEARCH STUDIES** Canning (1957) found that blind children achieve conservation of global quantity in the water-in-vessels situation later than sighted children. Hatwell (1966) compared groups of sighted and blind children on a variety of Piagetian tasks. She observed a two- to three-year difference between the blind and sighted on the performance of these tasks; however, the congenitally and adventitiously blind residential children were two to three years older than the sighted children at the time tested. Miller (1969) studied conservation of substance, weight, and volume in 26 visually impaired youngsters, ages 7-10, in a residential school for blind children. Seventeen children had no usable vision and the remainder were partially sighted. To control the amount of visual impairment, every subject was blindfolded. The partially sighted group did significantly better than the low-vision group. Miller's findings suggest that visual intactness may be an important determinant in the development of reasoning. On the basis of the performance in conservation tasks, a reasoning deficit of several years was suggested as typical of a group of visually impaired children. Simpkins and Stephens (1973) evaluated 75 congenitally blind and 75 matched sighted children on several Piagetian concrete and formal assessment tasks, including conservation, logic class-



# Stage Development

ification, memory, mental imagery, and formal operation; they concluded that the blind children generally showed delays of four to eight years in cognitive development as evidenced by Piagetian reasoning assessments. Swallow and Poulson (1973) reported at this same meeting last year that a small group of ten visually limited children had shown difficulties in the achievement on various topological projective and Euclidean spatial tasks, which were found to be the most difficult at the concrete stages.

On the other hand, Tobin (1972) investigated the conservation of substance experiments with 189 blind and partially sighted children. He inferred that "...while the best of them are performing on par with the best of their sighted peers, the age range in which conservation is attained is more extended for the visually handicapped." Higgins (1973), using a very select group of blind children to investigate classification development by the Modified Kofsky Battery of Classification Tasks, concluded that the blind did not reveal developmental lags that could be related to any delay in the formation of intellectual structures, and that blindness per se should not cause any intellectual delays. His results closely conformed with Piaget's findings, although he questioned one or two viewpoints. Cromer (1973) also found no differences among three groups (blind, sighted, and sighted blindfolded) in the age at which conservation was attained.

In this study of conservation development, it was hypothesized that blind children will follow the same developmental patterns as the sighted; in other words, that the blind children will: a) conserve in similar ways on mass, weight, and volume, and b) conserve at the same rate as sighted children. In addition, the following predictions were made concerning conservation. There will be no significant differences among the number of conservation responses given by the various groups (blind, sighted, and sighted blindfolded) to the different types of conservation (mass, weight, and volume). There *will* be a significant difference among the number of conservation responses given at the different ages to the different types of conservation.

**GOTTESMAN'S STUDIES** For both of my studies, the criteria for selection of a blind child was congenital blindness (light perception or less) and the absence of any other manifestation of a physical, intellectual, or psychological handicap. For the earlier study, the only other restrictions were that the children had to be between the ages of two through eight, and nonresidential. A most extensive and exhaustive search was conducted in cooperation with the New York State Commission for the Visually Handicapped and local agencies servicing blind children throughout the State of New York.

After reviewing all the records available to the Commission, and after several months of investigation, 15 children meeting the designated criteria were located. This population was compared with a random sample of sighted children, of which one group was blindfolded for the experiments.

The same criteria applied for the second study, except that the age range was changed to include children between the ages of four and twelve. The original 15 subjects were tested on the new task and 10 additional nonresidential subjects were located. To increase the population of blind children to 15 per cell per age range (a total of 45), an additional 20 residential children were included. These children were selected on the basis of evaluation reports of principals, psychologists, and teachers. After the population of both the

- A — Simple and Symmetrical.
- B — More Complex, but Symmetrical.
- C — A number of Purely Topological Forms.

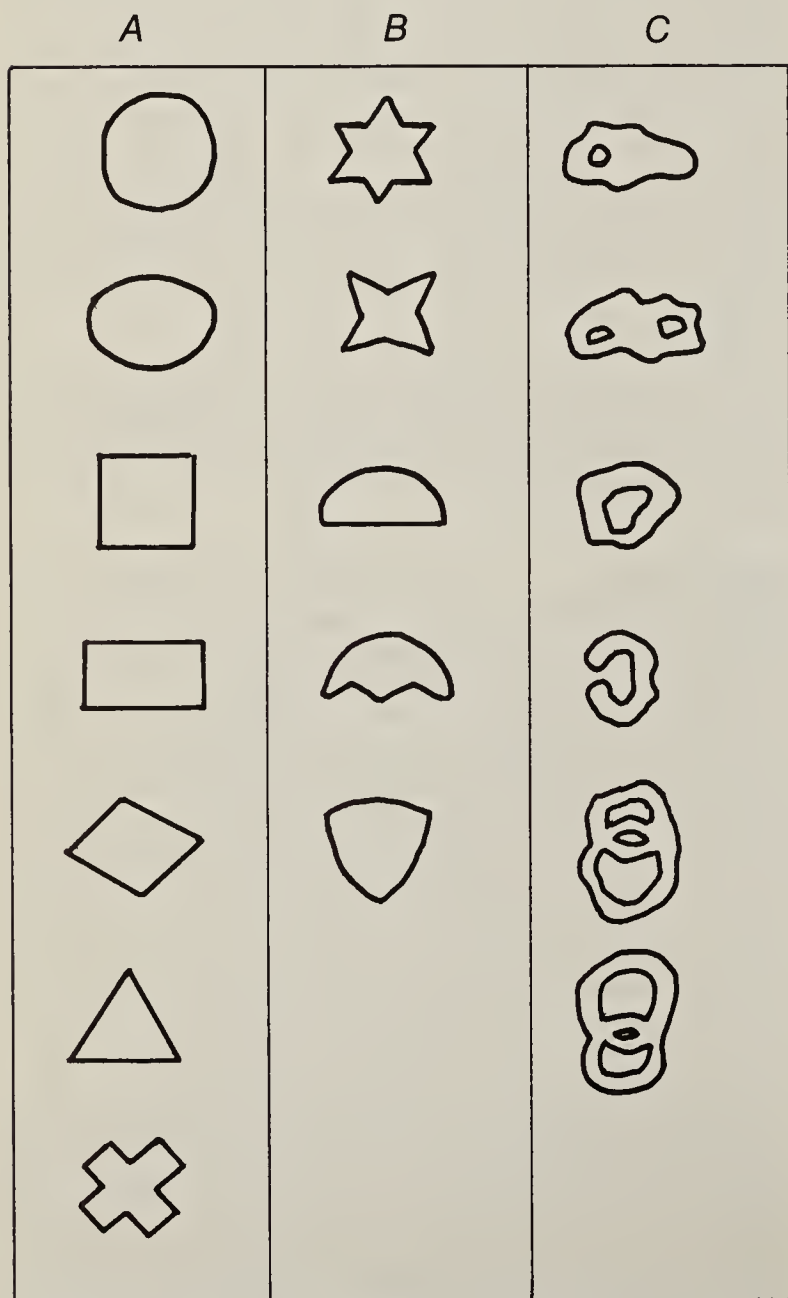


Figure 1. Series of Cut-Outs in the Shapes of Geometrical and Topological Objects



New York Institute for the Education of the Blind and the Batavia School for the Blind was depleted, additional children were selected from the Oakhill School for the Blind in Connecticut, the Overbrook School for the Blind in Philadelphia, and the Maryland School for the Blind. The 45 blind children were then compared with random groups of sighted children, one of which was blindfolded for the experiment.

**MATERIALS FOR STUDY ON HAPTIC PERCEPTION** The illustrations for the construction of the geometrical shapes and topological forms for the study of haptic perception were taken from Page's diagram (1959). The material used in the construction of these objects was Masonite. All the geometrical shapes were cut to 3mm thickness and the remaining dimension, in proportions of those of a circle with a diameter of 7.5 cm, as developed in the study by Pinard and Laurendau (1966).

The objects for recognition through manual manipulation were categorized in three groups: a) familiar solids, including a pencil, a key, a comb, a ball, scissors, a spoon; b) flat geometrical shapes, including a circle, an ellipse, a square, a rectangle, a rhombus, a triangle, a cross, a six-pointed star, a four-pointed star, a semicircle, a notched semicircle, a shield; and c) topological forms, including an irregularly shaped piece with one hole, an irregularly shaped piece with two holes, a closed ring, an open ring, two intertwining rings, two superimposed rings (see Figure 1).

### Procedure

The following instructions were given to Group A at all stages: "I will now hand you something to feel. See if you know what it is." Group A at Stage I was only required to explore and recognize familiar solids visually. The box in which the objects were felt was removed, and the instructions continued: "I am now going to place four objects in front of you, one of which has the same shape as you just felt. I want you to point to that object." At Stages II and III for Group A, flat geometric shapes, as well as topological forms, were introduced with the same set of instructions.

The following instructions were given to Groups B and C at all stages: "I will now hand you an object. Feel it and see if you know its shape. Then I want you to try to remember it." Again, at Stage I for Groups B and C, the children were required to explore, recognize, and identify familiar solids. These groups, however, were only able to use their sense of touch to accomplish the task. They were given the following instructions: "I am now going to hand you four objects, one right after the other. From those four objects, I want you to pick the one that has the same shape as the first thing you felt." At Stages II and III, for Groups B and C, flat geometric shapes, as well as topological forms, were introduced with the same set of instructions.

The responses of Group B were compared with those of Group A in order to differentiate between responses of tactual and visual selection on a similar task. The results from Groups A, B, and C were then analyzed for differences in performance. Each correct response was given a score of 1 and each incorrect response was scored 0.

### Testing Materials and Instructions

In the test for conservation of mass, two clay balls, identical in size, shape, and weight, were on the table. The experimenter asked: "Do both balls have the same amount

of clay? Is there as much clay in this ball as in this one?" The child was encouraged to "make them the same," if he doubted the equality of the balls. When the child agreed that both balls were equal, the experimenter asked: "Suppose I roll one of the balls into a shape like a hot dog; will there be as much clay in the new shape as in the ball? Will they both have the same amount of clay?" The preceding questions required child to predict if the amount of clay would remain the same if the shape of one of two equivalent balls is unchanged. These questions are called *prediction questions*.

After the child's prediction, the experimenter actually made one of the balls into a hog dog shape while the child looked on. The experimenter asked: "Is there as much clay in the ball as in the hot dog? Do they both have the same amount of clay?" These questions required the child to judge whether the amount of clay had changed with the alteration in the shape of the ball, and are called *judgment questions*.

Then the experimenter asked: "Why is that?" to the child's response. This question required the child to explain his previous responses and represented an *explanation question*.

Exactly the same procedure was used to test for conservation of weight and volume. To test for conservation of weight, the experimenter asked: "Do they both weigh the same? Do they both have the same weight?" and so forth. For conservation of volume, the experimenter asked: "Do they both take up as much room?" On each test, the child was initially given the opportunity to handle the balls and to add or subtract as he wished to "make them the same." The same procedure was used with the blind children and the blindfolded sighted children except that they identified the objects by touch and changed the balls of clay into hot dogs by themselves.

**TESTING PROCEDURES** Each child was tested and questioned individually three times on each type of quantity: he was asked to predict, to judge, and then to explain his conservation or nonconservation responses. The order of the questions and the order of presenting the quantities—mass, weight, volume—was the same for all children.

The children's explanations were categorized for comparison with the explanations given by Piaget's (Piaget & Inhelder, 1941) subjects. Explanations of nonconservation were grouped as either romancing, such as: "My mother told me so," or perceptual, a response which recognized changes in one or more of the object's dimensions. Explanations given for conservation were divided into specific, such as, "That's the same thing," or general, such as "No matter how you change it, the amount stays the same."

Each conservation response was given a score of 1 and each nonconservation response was scored 0. Every child responded on each task of conservation to three different questions: judgment, explanation, and prediction; therefore, for each child, there was a total possible score of 9 points.

In the present design, chance of differences between the children were controlled by testing all subjects on all types of responses. A three-way analysis of variance (group by age, by conservation type) was performed to evaluate the data. Contrast analysis (Scheffe, 1959) was applied to differing findings in an attempt to isolate the performance of each group and contrast it with that of the other groups.



# Stage Development

Ages	Sighted	Sighted (Using Tactual Recognition)	Blind
2-4	87%	80%	93%
4-6	100%	93%	100%
6-8	100%	100%	100%

E<sup>1</sup> Total N = 45 Subjects (5 in each cell)

**Table 1. Mean Percentages of Correct Scores for Three Groups on Familiar Solid Objects (1-6)**

Ages	Sighted	Sighted (Using Tactual Recognition)	Blind
4-6	100%	73%	67%
6-8	83%	80%	70%

E<sup>2</sup> Total N = 30 Subjects (5 in each cell)

**Table 2. Mean Percentages of Correct Scores for Three Groups on Topological Objects (7-12)**

Ages	Sighted	Sighted (Using Tactual Recognition)	Blind
6-8	93%	68%	85%

E<sup>3</sup> Total N = 15 Subjects (5 in each cell)

**Table 3. Mean Percentages of Correct Scores for Three Groups on Geometric Shapes (13-24)**

AGE (in YEARS)	Sighted			Blind			Sighted Blindfolded		
	Mass	Weight	Volume	Mass	Weight	Volume	Mass	Weight	Volume
4-5 . . . . .	1.26(3) <sup>a</sup>	1.13(3)	.13(1)	0.83(1)	0.73(2)	.40(1)	1.66(6)	1.4 (6)	.53(0)
6-7 . . . . .	2.24(8)	2.2 (8)	.13(2)	1.06(1)	1.00(4)	.60(2)	2.13(8)	2.53(10)	.86(3)
8-11 . . . . .	3.0(15)	2.6(13)	.33(1)	2.6(12)	2.53(12)	.20(2)	2.9(14)	2.9(13)	.40(2)

Note.—N = 15 Ss per age level; total N = 135.

<sup>a</sup> The number of subjects answering all questions correctly is in parentheses.

**Table 4. Means for Type of Conservation for Each Group at Each Age Level**

## Results

The results of the study on haptic perception showed that there was no significant difference in the mean performance of blind and sighted groups at the various age levels (see Tables 1, 2, and 3). The findings of the study of conservation development revealed that the groups of totally blind children followed the same developmental patterns as the group of sighted except that the rate of development of the blind subjects was slower than that of the sighted groups at the younger age levels (see Table 4). On the tasks of conservation, there was a significant difference among the performances of the three groups ( $F[2,396] = 6.35, p < .05$ ). The performances of the groups at the three age levels also differed significantly ( $F[2,396] = 35.16, p < .01$ ). Similarly, significant differences were found in the performances of the groups of the three types of conservation ( $F[2,402] = 58.46, p < .01$ ).

The rate of conservation development for blind children was slower than that of the sighted at the four-to-five and six-to-seven level. For all three groups, conservation of mass was the easiest, followed by conservation of weight. Very few in all three groups were able to conserve in volume tasks.

There was also significant differences found among the number of conservation responses given to the different types of questions (prediction, judgment, and explanation). Prediction and judgment responses were almost equal in number, while explanation responses were the most difficult and were significantly fewer than the prediction and judgment responses.

There were also significant differences among the number of responses given by the three groups to the different types of conservation. On the tests for conservation of mass and conservation of weight, the three groups differed considerably; on the test of volume, no significant differences were found among the groups. Table 4 contains the mean scores for the three groups on mass, weight, and volume. The means for the blind children are lower on both mass and weight tests, and contribute most strongly to the differences found. All of the mean scores are extremely low on volume tests.

**ANALYSIS OF RESULTS** The primary significance of both studies must not be underestimated. The central issue involved is the development and functioning of intellectual reasoning. Piaget stated that "every notion, whether scientific or merely a matter of common sense, presupposes a set of principles of conservation either explicit or implicit," and further "that conservation is a necessary condition for all



rational activity" (Piaget, 1941, p. 3). Piaget also concluded that "if the development of various aspects of child thought can tell us anything about the mechanism of intelligence and the nature of human thought in general, then, the problem of space surely ranks as the highest importance" (Piaget, 1948, p. vii). Although both studies are primarily associated with various physical, mathematical, and spatial concepts, their potential application may extend to the more general psychological phenomena.

The nonresidential subjects of both studies came from diverse geographical regions and their families represented a cross-section of socio-economic stratification. One important common factor was identifiable with this group of children: they appeared to be well-adjusted and integrated with their families and environment. In most instances, they were treated first as children, with blindness as a secondary factor. They were generally also well accepted by their siblings and performed daily routines similar to those of their brothers and sisters. The degree of freedom and responsibility given these visually impaired children by their parents appeared to be the most crucial factor in their well-being.

My impression of the general adjustment and functioning of the residential group varied greatly from that of the non-residential group. An analysis was performed on the differences between the scores of the residential and non-residential blind children. On the performance of Conservation Tasks, the results of a *t*-test were significant at the 0.1 level, with the group of nonresidential children performing significantly better. The reason for the results of this high degree of significance was primarily because of the difference of the scores at the four-to-seven-year age level. At age levels 8-11, no significance was noted between both groups. It is interesting to note the effects of early environmental factors on the development of the blind child.

**GENERAL CONCLUSIONS** Implicit within Piagetian research are several important general educational conclusions that can be adapted and applied to the education of blind children. The first requirement in this educational process is the development of appropriate modes of communication and dialogue. The starting point should be comprehensive enough to include all children in the modification of their existing schematic structure. Each child should always be considered to possess a unique style of adapting to new learning situations. At each level of development, new differentiation poses a unique problem and solution. The child must be encouraged to manipulate his environment actively and to explore objects physically in order to learn about them. As the child progresses from one stage to another, self-development integrated with social interaction and the appropriate physical experience will help promote intellectual growth and competence. It is obvious that children will vary in their rate of conceptual attainment. Especially when we are concerned with handicapped children, wide variation is normal and naturally expected. Even within the sequential order of certain concepts, individual variation can also be observed. Our task is to understand how children conceive of their environment and how their conceptions change in order that we can supply opportunities in which they can achieve their potential.

The basic limitation of both studies remains the same. The results obtained from the performances of the groups of blind children cannot be applied to the entire population of

the totally blind, as these blind subjects were not randomly selected; an interesting possibility remains in comparing the results of these studies with the results from random groups of blind subjects.

Because of the lack of appropriate experiences for conserving, the blind subjects at the six-and-seven-year age level lagged behind the performance of both sighted groups. But at the eight-to-eleven-year age level, the blind group performed as well as the other groups. This phenomenon could be due to the fact that the tasks at the older age levels required an increased reliance on integrative processes of cognitive functioning, rather than a reliance on the less sophisticated sensory discriminatory abilities. More information is conveyed through the visual perceptual processes than through the tactual processes at an earlier stage; therefore, the blind children perform less accurately than the sighted ones at that age level. At a later stage, both perceptual modalities relay a sufficient amount of information required by the subject to make appropriate conservation responses.

A possible explanation for the success of the sighted blindfolded groups, especially in the conservation study, is that the tasks required the ability to integrate perceptual information. The results indicate that the visual modality caused more confusion and interference than did the tactual modality in responding to the tasks. The results of the performance of the sighted blindfolded groups correspond to the results of reported studies of conflicting perceptual cues (Frank, 1964; Feigenbaum & Sulkin, 1961; Bruner, 1964). Also to be considered is the fact that the sighted blindfolded and blind groups in both studies performed intramodally (tactual-tactual); the sighted group in the haptic perception study performed intermodally (tactual-visual) and in the conservation study, intramodally (visual-visual). In the study of conservation, five of the total conservers were sighted blindfolded, three were blind, and one was sighted.

### Significant Findings

Significant findings of both studies were as follows: 1) Vision and visual imagery were not necessary for the performance of Piagetian tasks of haptic perception and conservation development. Touch and tactile imagery may explain the ability of the group of blind children to respond successfully. 2) The sequential development of age and stage were found to be appropriate to both groups. 3) Vision was not necessary in responding to actual tasks, as noted in the success of the sighted blindfolded group. On the tasks of conservation, this group performed more accurately than did the other groups.

Both of these studies can be helpful to the educator as well as to those interested in clinical diagnosis of blind children. The capabilities of the thought processes of a select group of totally blind children in two areas of development have been explored. On the basis of the results obtained, standards and criteria can be established to maximize the potential functioning of less capable blind children. Educational curriculum and materials can be produced to meet the various levels of need. Some of these materials can also be used as diagnostic tools for more general behavioral evaluation.

Both of these studies have analyzed the capacities and functioning levels of congenitally blind children. The results obtained are relevant to understanding the levels of intellectual functioning and reasoning of visually impaired children. These studies also revealed that blind children are not necessarily handicapped in developing cognitive and



reasoning capacities. The subjects of both studies did not manifest any developmental lag that could be attributed to the inability of the blind children to integrate information perceptually at the younger age levels. Piaget's stages of cognitive functioning were equally appropriate for both sighted and blind groups, despite the significant role that vision plays in the attainment of these concepts. Although vision per se appeared significant, no adequate explanation is available to explain the findings of blind groups.

In a general sense, Piaget has contributed to four important areas, all of which have application to blind children: 1) observation of patterns of behavior; 2) formulation of developmental stages; 3) the study of transitions between stages; 4) exploration of conceptual levels and functioning of concepts. The resulting findings can be applied to educational evaluation of the functioning of blind children as well as the possible assistance in clinical diagnosis. Consequently, curriculum and educational materials could be adapted to foster these concepts at the necessary levels of development. Just as the present studies implied significance in the application of Piaget's work to the understanding and development of blind children, so the study of blind children could likewise contribute to further develop Piaget's theory.

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## New IRS Rulings Aid Blind Persons

Two new Internal Revenue Service (IRS) rulings have been enacted that will benefit blind persons. The first ruling states that parents who bought braille editions of books and magazines for their blind child may deduct the amount exceeding the cost of regular editions as a medical expense. The second ruling allows blind employees who hired readers in connection with their work to deduct the cost as a business expense.

## Right to Serve as Jurors

The state of Washington has recently passed a law guaranteeing the right of blind persons to serve as jurors. Previously, the law stated (as it still does in many other states) that "no person shall be competent to serve as a juror unless he be in full possession of his faculties and of sound mind." The new law reads: "Provided that a person shall not be precluded from the list of prospective jurors because of loss of sight in any degree. Sound mind, as used in this section shall mean the necessary mental process utilized in reasoning to a logical conclusion."



# Physiological Measures as a Means of Assessing Reactions to the Disabled

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**Abstract:** *Some thoughts on individuals' reactions to the disabled are presented. Movement toward a model that encompasses psychodynamic, environmental, as well as physiological factors, is suggested. Evaluation of reactions to the disabled is also discussed, with an example of a current study employing the Psychological Stress Evaluator to measure stress in relation to 11 disabilities, including blindness. Stress reactions were found to vary between individuals, and certain disabilities elicited stress more often than others. Rating of disabilities according to relative desirability was not always congruent with the degree of stress elicited. Results and suggestions for further studies are discussed.*

**Note:** *Portions of this article were presented at the American Psychological Association Convention, September 1975, or at the National Rehabilitation Association Convention, October 1975.*

■ The sources of negative reaction to the disabled vary according to the theoretical stance one takes and the result of research on the subject. Dislike, rejection, and attributing sinfulness to the disabled are the more transparent attitudes brought about by several possible causes. Psychoanalytic theory speculates interaction with the disabled may arouse castration anxiety. Schilder (1935) suggests more generally that a well ordered unconscious body image is threatened by someone physically disabled. Some non-disabled are threatened by the possibility that they could acquire a disability, prompting unaccepting behavior toward the disabled. These are psychodynamic approaches meant to explain negative attitudes and behavior toward the disabled. A less dynamic approach asserts that what is perceived as different about another individual causes negative feelings or attitudes. Other models that would integrate physiological aspects with attitudes, feelings, and behavior are virtually non-existent.

**REACTIONS TO THE DISABLED** Hebb (1946) postulates a neurophysiological theory as a result of observing man's and chimpanzee's spontaneous fear of mutilated and unresponsive bodies. He attributes the fear to conflict (primarily of a cerebral nature) resulting from perception of objects that are both familiar (thus, compatible) and unfamiliar (thus, disruptive). Fear implies the organism is threatened by some foreign object. Thus, there appears to be a threat dimension contained in both psychodynamic and physiological notions concerning responses to the disabled. Since understanding *threat* is so essential, it is important to determine how threat can be recognized.

When an organism perceives a threat to itself a physiological tension state called "stress" occurs. Shontz relates Lazarus' observation that the "key to whether a situation is appraised as stressful is whether it arouses an anticipation of harm—stress is virtually equivalent to threat" (Shontz, 1975, pp. 134-135).

## Stress

Stress, then, is recognized as essentially the same as threat and offers the advantage of being objectively measurable. English & English (1958) define stress as "a force applied to a system sufficient to cause *strain* or distortion in the system, or, when very great, to alter it into a new form." Physiologically, strain occurs in the organism as muscular tension. The sequence of assessment can be viewed in the following manner. Strain (muscular tension) is the signal of stress (threat) in the organism, which accompanies negative attitudes (or feelings) toward the disabled and leads to unaccepting behavior. The reverse may not be as consistently true. That is, negative behavior toward the disabled may not always be traced back to stress. It is conceivable that one can avoid or mistreat the disabled and, at the same time, experience no physiological tension.

**RELATIONSHIP BETWEEN STRESS AND ATTITUDES** Whether stress produces certain attitudes, or attitudes produce stress, is another interesting question. Stress seems to be dependent on the person's perception of the environment, and the nature of that perception will largely determine level of stress. Other factors will affect stress level, such as the intensity of the threat and the type of situation the person is placed in when confronted with the threat (Shontz, 1975). Attitudes surely are part of a person's perception of the environment and consequently they do, in con-



**“...certain disabilities seem to signal stress in people more frequently than do other disabilities. That is, some people experience little stress toward the disabled, while others will physiologically react negatively to nearly any disability.”**

junction with variables such as values and social pressure, affect stress level.

The relationship between stress and attitudes, as well as overt behavior, is complex and unclear. Once stress occurs what impact does it have on attitudes, and how might it affect treatment of the disabled? Again, other variables enter the picture that in some way control or modify the effect of stress. Learned restrictions on acting-out, or social pressure to give a facade of acceptance, may disguise a contradictory internal state.

#### **Past and Present Assessment**

Assessing an individual's reaction to the disabled has proved quite difficult in the past. Straightforward paper and pencil inventories rely on self-report, leaving them open to question as to accuracy in reflecting the true perceptions or characteristics of the individual. More sophisticated measures have been developed to account for the influence of circumstances on attitudes, and projective techniques have been used to disguise the intent of testing, while at the same time opening the assessment to questions of validity. These measures can all be useful to the researcher and practitioner, since no known measurement device is without some kind of error. It is suggested here that research employing an additional measure of physiological responses will add a relatively objective dimension to assessment. Since we can measure stress quite objectively through use of the Psychological Stress Evaluator (PSE), this area of physiological response can significantly add to our repertoire of assessment techniques.

**PSYCHOLOGICAL STRESS EVALUATOR** The PSE is a relatively new instrument that measures a person's stress by charting voice modulations from a tape recording. An individual is presented with questions to answer verbally, or the person can simply verbalize when placed in a situation vis-à-vis the disabled. The only necessary equipment is a tape recorder. Later, charts are run on the PSE to rate the individual's level of stress while verbalizing. A number of pilot studies employing the PSE are now being conducted in the general area of the disabled, and specifically with blind persons.

**MODEL STUDY** In one study students attending the State University of New York at Albany were asked to do two things with a list of 11 different populations, including physically and mentally handicapped persons, (black, blind, cerebral palsied, diabetic, ex-offender, homosexual, mentally retarded, one arm amputee, one leg amputee, paraplegic, psychotic). First, they were asked to list the groups in order from the one they would most be willing to

acquire to the one they would least be willing to acquire. Then, they were asked to verbalize each of their choices while being tape recorded.

Several research questions were asked: 1) Do people show significantly increased stress when confronted with people “different” from themselves? 2) Do people show significantly greater stress toward some people “different” from themselves than toward others? 3) Is there a relationship between the selections and the relative stress exhibited toward those selections? 4) Do individuals experience stress toward all exceptional populations, or only toward specific ones?

The subjects as a group demonstrated stress significantly (at .01 level, *t* test) above situational stress in relation to all 11 “different” populations.

Stress exhibited toward the cerebral palsied was found to be significantly greater than that toward ex-offenders. All other relationships between the categories on the stress dimension were not significant. Thus, while there was hard stress toward all exceptional populations, only one aroused more stress than another.

The group was not consistent in both selecting the categories and showing low stress. To illustrate this, blacks and diabetics were selected as most desirable of the 11, yet were in the top four in terms of creating high stress. On the other hand ex-offenders were viewed as third most desirable and produced the least stress.

There was a great deal of variability on individual stress in relation to each category. Eight of 20 subjects experienced stress toward one to three exceptional populations. Seven people experienced stress toward nine to 11. Thus, although the group scores indicated stress toward all groups, closer analysis of the data demonstrates that not everyone has a physiological reaction to all exceptional persons.

#### **Conclusions of the Study**

It is clear from the results that as a group the college students in this study experienced stress in relation to all 11 “different” populations. In terms of relative stress found with each category, only cerebral palsy elicited more stress in the students than did blindness. Thus, the non-disabled demonstrated an undeniably strong physiological reaction to blind persons. It is important to realize, however, in the entire area of measuring reactions to the disabled that analysis of groups should not cloud the presence of variability between individuals. Concluding that everyone experiences stress toward the disabled, including the blind, would be a mistake. It should be emphasized that certain disabilities seem to signal stress in people more frequently than do other disabilities. That is, some people experience little stress toward the disabled, while others will physiologically react negatively to nearly any disability. For example, 11 of the 20 participants in the study showed significant stress toward blind persons. Forty-five percent of the people demonstrated moderate stress to no stress at all, while 55 percent demonstrated significant stress. Consequently, the most accurate conclusion seems to be that we can identify those individuals who do become tense in relation to blind people (and other “different” people) as well as those who do not experience an unusual amount of stress. There is marked individual variability in these physiological reactions to the disabled.

Clearly there was a discrepancy between people's stated preferences and the order we found when measuring the discomfort experienced in relation to those selections. For



example, blindness was rated fifth in being least desirable among the 11 categories. It moved up to second in the amount of stress it elicited. More striking was the fact that black and diabetic rated as first and second in desirability, but moved to the opposite end of the scores on stress by producing more tension in the students than most other groups.

**REASONS FOR THE DISCREPANCY** There are many possible reasons for the discrepancy between stated preferences and level of comfort actually experienced. Some are due to individual differences while other reasons may be more general. For example, an individual may express quite liberal racial attitudes which are incongruent with his internal physiological state. Thus, individuals may not honestly report their preferences but, rather, select them on the basis of current social trends and values. Furthermore, some people may not be aware of the incongruence between body processes and verbalized preferences. Whether the lack of congruence is a function of conscious and unconscious mechanisms, the discrepancy between body process and verbalizations will likely create some form of conflict and interfere with the individual's functioning.

### The Need for Research

These initial findings are meant to stimulate interest in the necessity for research on non-disabled reactions to the disabled and other exceptional persons. Knowledge of stress reactions is important since it can be seen as the organism's readiness to eventually take some form of action, or avoidance of action, in relation to the disabled. If we can find out what disabilities stimulate stress, what kind of people experience it, and under what conditions, we may move toward a greater understanding of negative reactions to the disabled.

Furthermore, the PSE could be used as a biofeedback device to inform individuals when they experience stress

and perhaps modify their tension, much as other instruments assist people in modifying their alpha and beta states. There is also potential as a training device, but at this stage of development much more research is needed before we know just how to apply the PSE in practical situations.

**SUMMARY** It seems the future investigation of non-disabled persons' behavior in relation to the disabled would benefit from relatively objective measurement tools such as the PSE. If we honestly want to broaden our understanding of the community's reactions to the disabled we could employ instruments that will give us the most accurate information.

Several areas of research are needed and are of particular interest. The relationship between the various human dimensions (e.g. stress, attitudes, and behavior) and environmental factors (e.g. type, intensity, and circumstance of the stimulus) could be sought. Internally, how is stress related to the person's attitudes and verbalizations? A suggested study is that of examining the relationship between stated comfort level with certain disabilities and measured stress in relation to those disabilities. A myriad of possible areas of investigation might be presented when considering the need to look at various rehabilitation workers' reactions to their clients.

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## National Exhibit by Blind Sculptors

The Philadelphia Library for the Blind and Physically Handicapped will celebrate the Bicentennial by hosting a national exhibit by blind sculptors. The exhibition will run from June through September, 1976. The purpose of this show is to give proper public recognition to quality sculpture work created by blind artists. The library, which is located in the most historic area of Philadelphia, will be visited by thousands of tourists during the Bicentennial year.

Entries are limited to sculpture in any media, and prizes will be awarded. Blind artists nationwide are invited to submit their work. For further details and applications, contact Ms. Sandra Viddy, Library for the Blind and Physically Handicapped, 919 Walnut Street, Philadelphia, Pa. 19107.

## Music to Teach Mathematics

Musical notes from a touch-tone phone dial are being used to teach simple addition to students of the Washington State School for the Blind. The system was devised by a graduate student of the University of Oregon, John del Regato, who teaches at the school. The phone dial is hooked up to a speaker and supplemented with a piano and tone bars. Each tone or combination of tones represents a number or mathematical function. "I'm changing visual information to auditory information and dealing with the tonal center of the brain," explained del Regato. "I suspect these students could perform as fast, or faster, than normal students."

# A Sex Education Program for Congenitally Blind Adults in a Rehabilitation Center Setting

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**Abstract:** During a counseling internship at the Rehabilitation Center for the Blind, Sioux Falls, South Dakota, it became apparent that congenitally blind adults there had little or no knowledge regarding the opposite sex, sex roles, sexual function and process, or socialization. It was noted that these individuals simply had not received basic sexual information either in the home or in school. After noting this need for a sex education program for congenitally blind adults, a curriculum was designed to meet that need.

This article presents a summary of the preparation for and presentation of that program to two different class groups in the Sioux Falls facility. The article focuses upon the practical experiences of conducting a sex education course, and on important material of a theoretical nature.

■ "What is love?" "What is intercourse?" "How come a man can go to the bathroom standing up and a woman can't?" "What is masturbation?" "A woman has two breasts?" These questions were asked by congenitally blind adults at the Rehabilitation Center for the Blind in Sioux Falls, South Dakota.

In themselves, the questions are not at all unusual, but while the sighted person has ample opportunities for finding answers to them, the congenitally blind adolescent or adult may require a structured program to gain the sexual information he needs. Even though printed materials on the subject are available in braille or recorded form, these have little meaning to the blind individual who has no basic concept of physical sexual characteristics. For the blind, such concepts can only be formed by tactile exploration, a practice frowned upon in our culture.

**GOALS** The primary aim of sex education for any person should be to develop one's fullest potential for love.

It was felt that the course should attempt to communicate to the student a good understanding of the anatomy of the human male and female, the bodily functions of each, and the role played by each in reproduction. Upon completing the course, the student should be prepared for the physical and emotional changes which occur during the maturing process, and should understand that each phase of growth in that process has a purpose.

Sincere regard for the welfare of others in sexual conduct should be stressed. Previous misunderstandings should be clarified and information given as to where students could find answers to any further questions they might have. The student should be made aware of the ever-changing status of females and males in our society.

By the end of the course the blind student should possess positive attitudes and concepts towards sexual functioning and should know the guidelines for social behaviors, dating customs, and appropriate conduct and physical contact in various situations.

Above all, from the sensory stimuli and tactile exploration of educational media, the blind student should have learned the concepts usually formed by visual impressions.

**NEED FOR THE PROGRAM** We simply assumed, from earlier research and from our daily contact with and observations of the center clients and workshop employees, that a sex education program was needed. It was evident that our congenitally blind clients and workshop employees had inadequate anatomical understanding, possessed poor images of their own and others' bodies, lacked dating and social skills, were ignorant of the facts of intercourse and reproduction, knew little about fetal development or birth, and misunderstood drugs and alcohol. These gaps obviously had to be filled.

Two important factors in meeting the needs we observed were planning for adequate preparation of staff and the selection and development of materials to be used in the actual instruction.

## Preparation of Staff

We felt one of the clients' most vital needs was for a competent staff to assist them in coping with their concerns. In order to deal with this need it was evident that the existing staff had to evaluate their own sexual values before attempting to assist the clients.



To facilitate the total education of the clients, all staff members at the rehabilitation center were involved in a "desensitization" workshop, designed to clarify their values and to familiarize them with the program's goals and curriculum. A local marital and sexual counseling service was used as a resource for this workshop and throughout the program. We wanted the clients to feel free to consult any staff member they chose regarding sexual matters, rather than limiting their contact to two so-called "experts." As it turned out, there were few discussions outside of the class with other staff members.

We utilized a male-female instruction team chosen from existing professional staff members. We chose a married-single instructor combination because we felt our students could benefit from the varied types of experiences and responsibilities present in each situation.

## Materials

In choosing materials it was essential to find a book simple enough to be understood by all without talking down to the adults involved. We selected as our text Eric Johnson's *Love and Sex in Plain Language*.

One of our paramount concerns was supplementing the text with any possible tactual objects, such as a life-size model of the human body with interchangeable male and female genitals, prosthetic breasts, a brassiere, tampons, sanitary napkins and belt, an athletic supporter, and contraceptive devices. Throughout the course we used a Bedford model of the human body, borrowed from a local nursing college. An evaluation of the use of this model is contained in a later section.

**CLASS PREPARATION** Although the content of each session was carefully planned, class members had complete control over the time and degree of detail allotted to each subject involved, and individuals were not discouraged from discussing other subjects as well.

No time limits were set regarding the curriculum. The first group met daily for four weeks, the second for three weeks. There were twelve planned units, but in practice everything was kept flexible.

We scheduled classes for an hour each day, but the session was often extended beyond that time.

## Introduction to the Course

The goal of Unit I was to present information on why sex education was needed, to introduce the clients to the subject matter that would be available, and to learn from the clients what areas were important to them. The primary emphasis of the first two or three days was to put the clients at ease.

It was explained that the course was being offered on the assumption that "... sex is a part of life—only a part, but one not to be denied; that the power of sex for good and for evil is so great that we must make every effort to see that it is exercised responsibly; that to act responsibly a person needs all the relevant knowledge that he can understand; that mistakes are made, not because of too much knowledge, but because of too little" (Johnson, 1974). It was stressed that each one of us is a precious, life-filled being, with a need to recognize and value his or her individuality and sexuality.

During the first class session, the subject matter to be available was discussed, and it was explained that sex education included not only sexual intercourse and reproduction, but also such topics as dating, social behavior and values, and the use of drugs. Neither group volunteered

much feedback during the first class. Some class participants were eager and interested while others expressed nervousness, embarrassment, and anxiety.

Questions prompted by the discussion of course content included "What is masturbation?" (asked by a middle-aged congenitally blind woman), "What is a clitoris?", "Is it in the same place as the male organ?", "Is sleeping with your girl friend bad?"

We responded to value questions by making it clear that we could not give the clients answers, but that one of our goals was to enable them to make value judgments for themselves. We discovered that we were mistaken in assuming that our students' interpretation of terms was the same as ours. To one young man, "sleeping together" meant just sleeping, together.

The formation of a "trust circle," in which each student allowed the others in the group to support his body weight, followed the questions. It was not entirely successful, as some members of the group were too weak or poorly coordinated to support the weight of the person in the middle. Generally the class seemed to feel apprehensive and suspicious of exercises in personal trust and openness, yet felt ready to ask intimate questions the first day.

## PREVIOUS SEXUAL INFORMATION

Unit II was aimed at making the clients aware that, in our society, parents and teachers have generally been reluctant to discuss matters of a sexual nature. We hoped to gain group interaction by getting clients to discuss their attempts to gain information and the results they obtained. To establish a feeling of trust, the instructors related how they had gained information and corrected misconceptions, and encouraged clients to do the same. This proved very successful. One young man volunteered that his mother had always told him he could ask anything he wanted, but added that "it was hard if you didn't know what to ask."

We began the session with a trust exercise called "milling." The clients were asked to move slowly around the room until they contacted someone, and then to form partnerships, exploring non-verbal communication using hands only. Most of the participants were embarrassed and found it hard to deal with the abstract idea of tactile communications and openness. For example, one boy thought we were trying to stimulate sex drives by including body contact in the course.

The first chapter of our text was read, with some immediate responses from our students to the comments in the chapter, especially those pertaining to the difficulties encountered when asking parents for information about sex. We soon discovered that some of the class participants were more naive than we thought. One boy asked, "Is sex enjoyable for people?", "Did my mom and dad enjoy it when they conceived me?", "Is sex enjoyable at all to women?" Another boy freely related an unfortunate homosexual incident he had had, and showed a mature attitude toward it now. The class hour ended with a friendship circle in which two class members declined to participate. Judging from the reactions of class members, we concluded that these trust exercises were not successful, and that perhaps they were more for the instructors' benefit than the clients'.

## Male Anatomy

The goal of Unit III was to give the clients an understanding of the male body, its physical development, and the emotional changes that accompany this development. We



## “... The individual has a need to understand his or her own sexual and emotional powers and limitations.”

began with brailled definitions of male sexual parts, read to the group by two of the participants. As the definitions were read, students examined the male-genitals placed in the Bedford model, each part being pointed out as it was defined. We later decided that although reading definitions aloud gave the students an opportunity to pronounce and define new sexual terms, on the whole it was not a good idea because of speech impediments and because some students could read neither braille nor large print.

The participants had constant questions, often pertaining to the female genitals too. Many questions related to masturbation, erection, and penetration. One congenitally blind boy felt that although he had “wet dreams,” he had never had any sexual dreams. This is understandable when one begins to realize that he had no concept whatsoever of the female sex other than voice. One student felt that erection was painful. “Is intercourse painful too?” he asked. Much of the class hour was spent trying to explain a woman’s breasts to one young man; he had thought that the breasts were a single large organ with two nipples. We began to realize the inadequacy of plastic models when trying to describe breasts, what erection was, what circumcision was, and where the foreskin was. We made arrangements to have a model of an erect and circumcised penis available at the next class meeting.

### Female Anatomy

Unit IV emphasized the anatomy and development of the female body. In class, definitions were read while students examined the model. To clarify concepts, we felt definitions in this area should be listed in a logical sequence rather than alphabetical order. We found it difficult to explain the relationship between the uterus and the vagina, and the female reproductive system in general seemed complex and confusing to our students. We once again realized that we needed a better, more lifelike model, as the stiff rubbery texture of the model’s genitals limited the concepts we were trying to teach. To add to our given concept of the breast we used two prosthetic breasts and a bra. We also had tampons and sanitary napkins available, and explained how they were used while demonstrating with the model. Some of the students needed encouragement to explore the vagina tactually. One young man was extremely curious about how menstruation felt. One woman asked “How come a man can stand up and go to the bathroom?” In answer, she was given the male genital model to examine again as it was explained where it was located on the body, whereupon comprehension dawned on her face and she exclaimed “Oh, just stand up and whip it out.” One young man then explained to the class how men’s shorts were made. This class was the first time that one nineteen-year-old young man had seen a brassiere. Other questions dealt with how a woman masturbated. “Why was I *born* blind?” was another question. A young lady told the class how she first encountered menstruation and how she felt about it. Other questions that were asked and answered during the hour were: “Does the baby come out of the back?” “How does the penis get in the

right opening?” “Where does the baby grow?” “Doesn’t he attach himself by the front?” “Isn’t the umbilical cord attached to the mother’s breast?” “What is it for and when is it cut?” “Is the baby in a shell of some kind?” “Is it possible for a woman to get pregnant from fondling or caressing the breasts?” Several students asked for tapes of the book so they could listen to it on their own.

At times, as we answered questions, we realized we were introducing terms before the class was ready for them, but we felt that we should deal with questions as they were asked rather than wait until the students were familiar with the terms. During this session we began to discover some beliefs and values that had been handed down to some of our students when one woman asked: “Is it a man’s sex organs that make him behave the way he does? Is that what makes him ‘cat’ around?”

**SEXUAL INTERCOURSE** Unit V attempted to give the client an understanding of terms and processes involved in sexual intercourse. We also tried to make the clients aware of the fact that sexual behavior is a personal matter between partners, that practices vary among different couples, and that the sexual behavior between partners is an expression of love as well as a means of procreation.

It seemed that the students had attained very accurate concepts of intercourse from earlier questions asked during the classes on male and female bodies. These questions about intercourse seemed to come naturally as we discussed the male and female genitalia, and it was more appropriate to answer them at that time rather than waiting for the questions to fit our curriculum schedule. The chapter on intercourse emphasized that frequency of intercourse and sexual behavior vary greatly among couples and are personal decisions. Although class members verbalized freely, the only questions asked were: “Can a woman enjoy sex only when she is putting out an egg?”, “Is an egg ejaculated during climax as is the sperm in the male?”, “How does a sanitary napkin belt feel?”, and “What does an orgasm feel like?” One congenitally blind boy made constant comparisons between the female genitals and his own in trying to understand where things were and how it felt to have a woman’s body.

**CHILDBIRTH** The goal of the next unit (VI) was an understanding of heredity and the development and birth of a child, stressing the physical, emotional, and social aspects of childbearing and the potential for both joy and sadness involved with the responsibilities of creating a child.

Live models were used in both classes to demonstrate the appearance of a pregnant mother and to enable the clients to feel the baby move within the uterus. During the first class, as the chapter was read, the students took turns sitting beside a volunteer with their hands on her stomach until they were able to feel the movements of the fetus. In the second presentation of the course, a volunteer exposed her abdomen while in a prone position and guided the students’ hands over her stomach to give them a concept of size and shape during pregnancy. This volunteer also assisted the students in finding and listening to the fetal heart tones by means of a fetoscope.

This use of a live model seemed so natural and so beneficial to the students that we believe it will be possible to use live models in the future for presenting the concepts of the entire male and female anatomy. With artificial models, it was not possible to portray accurately skin texture,



size, or consistency, and we could not be sure what false concepts the students might be forming by assuming that the model was perfect (this is extremely critical, since many of the students tend to form concrete concepts from single isolated experiences). With live models, all concept generalizations would be realistic, with the possible exception of size variations.

Questions varied from "Why didn't the baby just fall out?" to "Does the baby inside feel anything at all like gas to the mother?" Some still did not understand that there were three openings in the vaginal area.

Another student had previously thought it possible to feel a baby's toenails and count the baby's toes by feeling the pregnant stomach. One of the feelings expressed during the session was a loss of embarrassment at asking questions and talking to the class. One of the questions still bothering two of the students was "Why was I born blind?" We were able to give them medical answers as to why they were born blind, but their real question was not "Why did this happen?", but "Why did this happen to *me*?" One mentally retarded boy was extremely disturbed by this, finding it necessary to place blame on either himself or his parents. We were unable to answer this question to his satisfaction. We later learned that he carried this question to his parents, who told him that a defective machine in the hospital had caused his blindness, and this put his mind at ease.

**ATTITUDES TOWARD INTERCOURSE** We had hoped in the next unit (VII) to familiarize the clients with social attitudes toward sexual intercourse, to bring to light the distinction between inborn and learned behavior, and to facilitate the clients' examination of their own value systems relative to sex roles in our society. Because of their lack of social or sexual experiences, and the inability to foresee such experiences in their future, it was difficult for some of our students to develop any realistic values. We did observe them developing value systems and better self-concepts in the months following the course.

We also found it necessary to refuse to answer some questions which the students asked regarding our own values, since it appeared that the values expressed in class were parroting of the values of significant others in their lives. For instance, to the question "Are you a virgin?" we replied that we, as instructors, could not answer personal questions because we had set values and standards, and these should not be accepted or rejected by the students simply because they were our values.

### **Masturbation and Homosexuality**

The next unit (VIII) dealt with discussing masturbation, homosexuality, and perversion, and anxieties or fears the clients may have had on these issues. To our question "What are some proper outlets for the sex drive before an individual is ready for marriage?", one answer was "Well, it's not accepted, it's not all right, but I suppose one of the ways is masturbation." We found a strong taboo against masturbation among graduates of residential schools for the blind. We stated that there was nothing wrong with masturbation except insofar as religious beliefs might influence views on this practice, and that it was normal. There was no reaction, except that each sex wondered how the other sex masturbated.

Some of the students felt that all homosexual acts were forced on one of the participants, and that homosexuals were looking for sexual satisfaction everywhere. The students

were curious about the physical mechanics of homosexual acts and the causes of homosexual personalities. It was emphasized that nearly everyone goes through a time in his life when he greatly admires someone of the same sex, and that this is normal. It was also stressed that, except in the case of perversion, homosexuals sought out consenting partners as do most heterosexuals.

### **Contraception**

The next unit (IX) explored the use of contraceptives in our society. Actual samples of oral contraceptives, prophylactics, intrauterine devices, and spermicides were used. Each device was examined by the students while its use was explained. The majority of the questions dealt with whether or not the devices hurt when used, how to use them, and where to obtain them. In spite of the questions asked, we felt that the physical and functional relationship of the vagina and uterus was still not clear. In the case of the intrauterine device, some students found it hard to understand which object was the device and which was the applicator. Although this information was important for the students to have, it was not really applicable to many.

Most of the students agreed that it was important to think about limiting the world's population. We emphasized that the prime consideration for determining whether or not to have children is whether or not they can be loved and supported.

### **Premarital Sex**

The next two class sessions (X and XI) set out to familiarize the clients with the considerations involved in premarital sex, such as illegitimacy, abortion, venereal disease, petting and necking. Even the meaning of such terms as petting and necking were foreign to some of our students. We defined necking as affectionate physical contact without sexual arousal. One boy could not accept that definition at first, and wondered if holding hands with his mother would be "necking." This again demonstrated our students' difficulty in generalizing concepts and their tendency to accept things literally as they were presented, i.e. if mothers were not specifically ruled out by the text's author, they must be included in the definition of necking. There was also little understanding of the differences between brotherly love and romantic love; they even asked for a definition of love.

We discovered that some of the students had already accepted verbal statements of values of their parents and peers unquestioningly, and seemed to have solid (though superficial) values for people with so little experience. Morality was defined by stating that, if after careful consideration it is decided that no one would be hurt, an act is moral. The majority of the clients never grasped this.

**DRUGS AND ALCOHOL** The last unit (XII) dealt with drug and alcohol use and abuse, which we feel is part of sexual and social information needed today. We set out to familiarize the clients with the problems of drugs in our society today and, through group discussion, to help them establish their own values on the issues of drugs and drinking. We also felt it was important to familiarize our students with the terminology and slang used by the drug culture and to make them aware of current laws pertaining to drugs and the possible penalties for violation.

The content of this unit involved listening to a recording, Gorodetzky and Christian's *What You Should Know About Drugs*. There was little interest or discussion during the



presentation of this unit. Most questions showed some curiosity about how certain drinks were made and what inebriation was like. Several members of the group, even though they were adults, had never been allowed to drink by their parents. Most participants had very rigid conventional standards and, although curious, did not really feel that this unit applied to them.

After the last class presentation, the participants were asked to evaluate the course content and our methods of presentation.

The comments by members of the group indicated it was good to have both sexes together in the class. They said this helped them talk about sex openly. One woman reaffirmed our feeling that a course of this type was necessary by mentioning that handicapped people are concerned about sex and having children. It was suggested that in future classes we use fewer medical terms, as they were too confusing to some of the students.

One young man evaluated the class this way: "It's important because all I'd heard before was the crap the other guys told me." In addition to these verbal evaluations, it was satisfying to notice definite growth in the social behavior and attitudes of maturity of some of our students in the months following the course.

**EVALUATION** The course's greatest weakness involved the model of the human body. Models available today are not for total concept development but are designed for anatomical study. Actually, we feel any replica of the human body is inadequate for teaching sexual concepts. Although the Bedford model we used was life-size, it was hard and stiff, with inadequate texture and detail. Moreover, it was only one model with interchangeable genitals, the breasts were inadequate in size, the size and detail of the genitals were unrealistic, and the penis could demonstrate neither

erection nor flaccidity. We feel a satisfactory artificial model should be far more lifelike in texture, size, and detail, with no removable parts.

In general, however, we feel any replica of the human body is inadequate in teaching sexual concepts, and that only live models can accurately teach the concepts we feel are important. Our interest in live models increased after two volunteers in the eighth and ninth months of pregnancy participated in demonstration of the distended abdomen, fetal movements, and heart tones.

**CONCLUSION** We are most disturbed by the fact that our program was presented far too late. Even though the program was very helpful in the maturing process for the students we had, it would have been much more effective at an earlier time in their lives. Until adequate sex education for handicapped persons is introduced during childhood and adolescence, we view a sex information program for adults as one of the responsibilities of a rehabilitation center.

We hope that this article may be used to help establish other sex information programs for adults, and that this information will encourage development of sex education programs for the school-age blind.

On the basis of the comments we have received and the emotional growth we have observed, we feel that our sex education course was successful in meeting many of the original goals, and that we have found an effective way to help solve the problem of the congenitally blind's lack of sexual information.

## Reference

Johnson, E. W. *Love and Sex in Plain Language*. Philadelphia: J. P. Lippincott Co., 1974.

## Wisdom Comes with Age

A recent study conducted by the Veterans Administration's Boston outpatient clinic revealed that although people think more slowly as they age, the quality of their thinking improves. According to Dr. Raymond Bosse, the associate director of the study, older people "seem to be able to make more accurate judgments, partially because they're more cautious and take time to make up their minds."

Involving 2,000 men over a 12-year period, the study also showed that there is greater freedom from anxiety for most people after middle age. Anxious people also tend to retire younger while more calm and stable people prefer working to an older age. "Improvement in health and the growth of white collar occupations has made later retirement possible while, at the same time, technological factors tend to bring about earlier retirement," said Dr. Bosse. "The resulting squeeze is creating a special problem for many older workers."

Another finding of the study was that depth perception does deteriorate with age, beginning somewhere between 40 and 50 years. With the years it becomes progressively worse. Memory, however, does not necessarily become poorer with age. Though older persons may take slightly longer for tasks requiring memory, their performance proved to be no worse than that of younger men.

## White House Conference On Handicapped Individuals

President Ford has announced that the White House Conference on Handicapped Individuals will be held in December, 1976. Before the national conference a series of state conferences will be held to assist in determining the agenda and priorities of the national meeting. The principle goals of the national conference have been cited as: 1) stimulating a national assessment of problems faced by individuals with physical or mental handicaps; 2) generating a national awareness of those problems; and 3) developing recommendations for legislative and administrative actions to allow individuals with handicaps to live their lives independently, with dignity, and with integration into community life.

A 28-member National Planning and Advisory Council has been appointed to help plan and conduct the White House Conference. Council members include nationally known educators, rehabilitation specialists, medical personnel, social workers, government officials, families of handicapped individuals, and consumers. The council will be chaired by Dr. Henry Viscardi, Jr., a Long Island rehabilitation specialist. Like many of the council members, Dr. Viscardi is handicapped. Handicapped citizens will be involved in all phases of the conference, and at least half of the delegates to the national conference will be handicapped persons.



# Counseling and Psychotherapy with the Visually Impaired: An Annotated Bibliography

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**Abstract:** Lists and describes the contents of selected books, chapters of books, and journal articles. The material included deals both with psychological aspects of vision impairment and with the use of specific therapies that have been used with individuals and groups. Specific problems of both congenital and adventitious vision impairment are covered.

Ashcroft, Samuel C. Delineating the possible for the multi-handicapped child with visual impairment. *The Sight-Saving Review*, 1966, 36(2), 90-94.

Describes the shift away from asking "types" and "labels," to what is needed and what is possible to help the child. Emphasis seems to be on behavioral techniques. Stresses a "clinical" program, with one-to-one treatment, and physiological development through motor activity. Not a heavy emphasis on psychotherapeutic approaches, rather a therapeutic milieu.

Article does not specify what kinds of activities are used with children.

Avery, C. Para-analytic group therapy with adolescent multi-handicapped blind. *The New Outlook for the Blind*, 1968, 62(3), 65-72.

Group psychotherapy is stressed by the author as a means of general personal interchange and communication. The role of the therapist is multi-faceted, depending upon the needs of the individual group members and the direction of the discussion. Basically it is analytical reflecting of the feelings of group members, clarifying reality aspects of their thinking and interpreting their feelings and actions. Descriptions of the two are given.

The author notes that the group sessions gave the members an opportunity to discuss matters that could not be handled in the classroom, and an opportunity for emotional release and working through of personal problems. It provided an atmosphere for social interaction with peers. Problems that arose during the sessions included the handling of aggression, the inability to establish close friendships, and one member in each group assuming the role of co-therapist. Topics discussed in the groups ranged from problems concerning blindness to relations with sighted people.

Baker, L. Blindness and social behavior: A need for research. *The New Outlook for the Blind*, 1973, 67(7), 315-318.

Examines the role of behavior in theories of socialization as a starting point for research. Specific areas of research considered are: 1) attitudes of others toward the blind; 2) the behavior of others when interacting with the blind; 3) the self-concepts of the blind; and 4) the behavior of the blind when interacting with others.

Bauman, M. Research on psychological factors associated with blindness. In *Social and Rehabilitation Services for the Blind*. Springfield, Ill.: Bannerstone House, 1972.

Bauman discusses psychological reactions to blindness by both congenitally and adventitiously blind individuals. In both cases the author stresses the importance of the interaction of environmental factors with the individual's personality. She approaches the therapeutic process from the practical viewpoint of the blind person learning to cope with the special problems created by blindness. She also takes into consideration the importance of the personality of the individual before he lost his vision.

Bauman briefly reviews research into blindness, under the following headings; 1) what is blindness made of; 2) what are blind men made of; and 3) what is the environment in which they live made of.

Blank, H. Psychoanalysis and blindness. *The Psychoanalytic Quarterly*, 1957, 26, 4-24.

The author interprets reactions to congenital and adventitious blindness with psychoanalytic principles. Blank discusses how blindness is related to ego development. He emphasizes the mourning behavior that the individual must go through to regain ego strength in the

case of acquired blindness. He also describes disturbances of motility and their implications for ego psychology.

Burlingham, D. Some problems of ego development in blind children. *The Psychoanalytic Study of the Child*, 1965, 20, 194-208.

The author describes developmental problems and difficulties in infancy which leads to such things as "blindisms": rhythmical movements, the need for repetitive behavior, problems of spatial orientation and recognition of objects, with the emotional implications involved. Verbalization is discussed in relation to acoustic perception and the development of memory.

Carroll, T. *Blindness*. Boston: Little, Brown, 1961.

The book comprehensively covers the aspects of blindness for the professional and lay person. Psychological, social, and vocational aspects of daily living are presented in depth. It includes analysis of what is lost, rehabilitation and restoration, special problems, organized work. It is probably the most complete offering in the area of blindness.

Chevigny, H. & Braverman, S. *The adjustment of the blind*. New Haven: Yale University Press, 1950, Chapter 6, 158-172.

The chapter discusses emotional adjustment to blindness. Investigations into the life of the blind show that the characteristic emotional disturbances associated with blindness stem from social situations and not from the sensory deprivation itself. There is no substantive evidence to indicate that blindness itself produces emotional disturbances.

The authors discuss the frustration and resentment induced by blindness. They concluded that each syndrome of resentment has a social situation as its focal point. The public conceptions and ascriptions of the emotional life of the blind are inaccurate.

Also discussed is the association between loss of sight and "the castration complex." The conclusions are that the thought of blindness mobilizes the fears and dreads in man's castration complex. Blindness is often associated with sexual impotency. The authors state that the discovery that loss of sight is not also a loss of sexual potency is one of the most important in the blind client's adjustment and recovery.

Chevigny, H. & Braverman, S. *The adjustment of the blind*. New Haven: Yale University Press, 1950, Chapter 7, 186-205.

The authors discuss various defense mechanisms that may be employed by the blind. They state that begging perfectly illustrates a mechanism by which all imputations of inferiority are turned by the mendicant into affirmations of superiority. Secondary gain and a freedom from punishment are other mechanisms discussed. Power derived from the exclusion of punishment can be a complete defense against any feelings of inferiority. The authors make a parallel between blind persons and other minority groups with respect to societal attitudes. Some vocational implications for the blind are also discussed.

The blind, it is concluded, do not seem to make marked use of escape mechanisms common in the sighted, such as peptic ulcers, alcoholism, schizophrenia, and paranoia. There is evidence of anger and resentment in the majority of blind, along with frustration. Anxiety over environmental mastery and fear of seeming clumsy and inept during

functioning are other major concerns for adjustment in the blind.

Finally, discussion centers around a release from inner conflicts, due to physical deprivation being interpreted as a form of punishment.

Chevigny, H. & Braverman, S. *The adjustment of the blind*. New Haven: Yale University Press, 1950, Chapter 8, 233-236, 249-251.

Further remarks are made herein with respect to adjustment theory. There is need for the blind person to readjust to physical organization, as well as to social organization. The authors suggest that hopelessness with respect to the return of sight contributes more to happy adjustment than does a possibility of hope. This is so because it is not in human nature to adapt if there is still a belief that adaptation may not be necessary.

The authors suggest that a psychiatrist be incorporated in a team approach toward rehabilitation of the blind client. His role would be to diagnose the difficulty and help the situation if possible, when an individual who clearly has the capacity to learn to readjust seems to be unable to do so. However, giving primacy to the psychiatrist's role constitutes a flaw in the rehabilitation philosophy.

Cholden, L. S., M.D. Developing psychological acceptance of disability in counseling adolescents and young adults: The blind. In *A Psychiatrist Works with the Blind*, New York: American Foundation for the Blind, 1972, 49-59.

As part of the counseling of the blind, the client who has acquired a handicap must be made aware that he or she is a different person. The inner person is altered. For effective rehabilitation to occur, acceptance of this new self must be accomplished.

In counseling the adolescent handicapped client, the author recommends counseling the client as an adolescent first, and then as an adolescent who is handicapped. "The therapist must offer himself as a relatively fixed, nonthreatening, warm figure. He must not take responsibility . . ."

Some of the preoccupations that interfere with acceptance of blindness by adolescents include: 1) importance of bodily attractiveness in the female, and masculine strength and independence in the male; 2) the problem of accepting certain dependencies which are characteristic of blindness; and 3) the exhibitionism accompanied with the desire for anonymity of the adolescent.

In conclusion, the author suggests that in the therapeutic session the counselor should follow the blind clients' leads, since blindness has a different meaning and implication for each individual.

Cholden, L. S., M.D. Some psychiatric problems of the blind. In *A Psychiatrist Works with the Blind*. New York: American Foundation for the Blind, 1972, 71-85.

Important emphasis is placed upon the fact that the client must accept an altered self-image, the image that he or she is now a blind person. Also discussed is the importance of the shock stage as a period of protective emotional anesthesia. The degree of ego damage suffered will depend upon pre-disability ego strength. The author hypothesizes that "the longer the shock state, and/or the greater the number of shock episodes, the more difficult is the person's rehabilitation to blindness."

The client reacts initially to the disability by experiencing a "reactive depression," accompanied by reactions of self-recrimination, feelings of hopelessness, self-pity,



lack of confidence in meeting problems, suicidal thoughts, and psychomotor retardation. The importance of the mourning phase is stressed. The author discusses some of the internal forces which resist the acceptance of the handicap. Included are: 1) resistance to change in human personality; 2) stereotypes of the blind; 3) irrational feelings concerning blindness with its sexual implications and connotations of punishment for sin; 4) the minority implications of inferiority status and personal devaluation; 5) accompanying necessary dependency; 6) false hopes for return of sight.

Cull, J. Psychological adjustment to blindness. In *Social and Rehabilitation Services for the Blind*. Springfield, Ill.: Charles C Thomas, 1972, 174-186.

Cull explores three factors which he associates with adjustment to blindness.

The first factor is the psychological effects of direct physical limitations, which cause excessive frustration that may result in behavioral disorders. The second factor is the relationship between the individual's attitude toward his disability and his adjustment to blindness.

The last factor discussed by Cull examines the person's general view towards his body and the relationship between this view and the extent and type of disability.

The author also describes the defense mechanisms used by the blind individual to cope with his disability.

Cutsforth, T. Personality and social adjustment among the blind. In P. Zahl, *Blindness: Modern Approaches to the Unseen Environment*. New York: Hofner, 1962.

Cutsforth's article describes the personality factors that blindness may induce. The author stresses the interaction between personality factors and the individual's social environment. He discusses specifically the impact of the blind person upon society and how the attitudes of society, rather than the physical conditions of blindness, influence the personality of the blind person. Two common reaction patterns to blindness, compensation and retreat, are discussed.

Cutsforth, T. D. Problems in the emotional life of the blind. In *The Blind in School and Society*. New York: American Foundation for the Blind, 1972.

The author's investigations into the life of the blind indicate that the characteristic emotional disturbances result from the social situations that blindness creates, not from the sensory deprivation itself. There is no evidence to mandate the notion that blindness itself produces emotional disturbance. It is concluded that "seeing members of society and the self-regarding attitudes they induce are entirely responsible for the emotional disturbances found in the blind as a group." As a result, the blind are subject to two main emotional maladjustments: 1) retaining of self-respect by becoming socially distasteful; and 2) gaining social approval by conforming to the attitudes of the sighted that the blind are socially and organically inferior.

Some of the personality factors sometimes present in the blind that were discussed included the fear of being watched, development of ambitions that cannot be satisfied because of blindness and the resultant instability and ego disintegration.

Elonen, A. S. & Cain, A. C. Diagnostic evaluation and treatment of deviant blind children. *American Journal of Orthopsychiatry*, 1964, 34, 625-633.

Intensive long-term evaluation and individualized

treatment of deviant blind children was introduced at an outpatient psychiatric clinic. The approach included child therapy, environmental manipulation, parent treatment and eventual placement in special classes. Conclusions regarding the therapeutic relationship, impact upon the family, and the ego growth observed in these children are discussed.

Farley, A. D. Counseling retinal detachment patients. *The Sight-Saving Review*, 1972-1973, 42 (Fall), 157-174.

This is a report of a study of retinal detachment patients, which was conducted to determine the unfulfilled needs of a diagnostic group and to devise individual and interdisciplinary team approaches to meet these needs. A psychosocial analysis of common problems of patients with retinal detachments is given, as well as special problems in each age group. The report describes the use of a medical social worker as part of a therapeutic team to deliver services and counseling.

Fitzgerald, R. G., M.D. The newly blind: Mental distress, somatic illness, disability and management. *Eye, Ear, Nose, and Throat Monthly*, 1973, March and April.

The author conducted two case studies on the psychological reactions to the onset of blindness. Results indicated that psychological distress reactions included depression, anxiety, suicidal ideation, and paranoid ideation. Other factors included the onset of poor self-esteem, initial denial of being blind, sexual impotency due to psychological reactions such as reduced self-imagery, and somatic illnesses for which no organic causes could be found.

The author mentions that strong family support and reassurance are essential in the rehabilitation of the patient. It is also important that the doctor indicate to the patient the permanence of the disability as soon as such a diagnosis can be accomplished.

Fraiberg, S. & Freedman, D. Studies in the ego development of the congenitally blind child. *Psychoanalytical Study of the Child*, 1964, 19, 113-169.

Ego arrest resulting from total congenital blindness is discussed by the authors. Case studies are examined to show that the process of ego formation was arrested during the critical period of development, from nine to eighteen months. The authors associate the developmental arrest with the psychoanalytic terms of a "freezing of personality on the level of mouth primacy and non-differentiation. They conclude that blindness per se was not the primary predisposing factor to deviant development, but the blindness along with a "lack of mothering" at a crucial developmental stage could lead to a high incidence of ego deviation in the blind child.

Freedman, S. Personality growth. *The New Outlook for the Blind*, 1966, 60(6), 173-176.

Explores and explains various influences on personality growth. "The entire family sustains a visual loss" when one member is blind, and each member copes with the disability in a unique way. School, teachers, and peers have a profound effect on the blind child. The impact of agencies on personality development is examined. The author goes on to illustrate how environmental influences can be positively conditioned to meet the needs of a developing child.

Froyd, H. Counseling families of severely visually handicapped children. *The New Outlook for the Blind*, 1973, 67, 251-256.

The author emphasizes the need for early counseling of



the parents of a blind child. She stresses the importance of the early years (one to three) where supplementary stimulation should be made available to the child, and the parents should be counseled as to where to find community resources to help them cope with their feelings of rejection of the child and despair over his handicap.

Hardy, R. E. Providing counseling services to blind and severely visually impaired persons. In John G. Cull & Richard E. Hardy (eds.), *Vocational Rehabilitation: Profession and Process*. Springfield, Ill.: Charles C Thomas, 1972, 396-405.

The author suggests that in serving blind clients, no special counseling theory need be constructed. Instead, the counselor should be familiar with topics such as the following: the etiology of diseases related to blindness, problems in adjustment to visual loss including mobility, social adjustment, occupational advice, and job placement. The role of the counselor is essentially one of coordinator of services.

An effective counselor must be ready to help the client understand opportunities for education, employment, and social activities. In the counseling process, verbal cues such as "um-hum's" and "hmm's" must replace eye contact and facial expression. Silence should be used sparingly as a leading technique. The author suggests that the counselor should take care to limit extraneous disturbing sounds.

Most important of all, the author delineates the importance of counseling the client for the client's needs, not the counselor's.

Hallenbeck, P. *Dogmatism and visual loss*. New York: American Foundation for the Blind, 1967.

Hollenbeck explores three hypotheses relating blindness to dogmatism.

1. In a group of blind persons, dogmatism is positively related to the tendency to deny the disability, its implications, or feelings about the disability.

2. In a group of blind persons, dogmatism is inversely related to the tendency to show depression.

3. The relationship between dogmatism and denial is greater in blind persons who experience a gradual onset of disability than in those who experience a sudden onset.

The author concludes that:

1. The more dogmatic a blind person is, the more he will deny his disability and its effects.

2. The less dogmatic a blind person is, the more depression he will show in relation to his disability.

3. If the onset of blindness is sudden, there will be less denial, regardless of the degree of dogmatism.

Kantrow, A. Counseling service for diabetics. *Sight-Saving Review*, 1967, 37(2), 73-77.

The author describes the etiology of this disease and the difficulty of rehabilitation when multiple effects of the disease are present, especially difficulty in psychological acceptance and adaptation to the daily regimen of control. The counselor must have expertise and knowledge concerning diabetic control and conditions, besides counseling skills. Group counseling for both diabetic and parents, structured around problems and care of the diabetic, are discussed, as well as other problems.

Keeler, W. R. Autistic patterns and defective communications in blind children with retrolental fibroplasia. In P. H. Hoch and J. Zubin (eds.), *Psychopathology of Communication*. New York: Grune & Stratton, 1958.

This article concentrates on characteristics of children

with RLF, and on the possible influence of brain damage as well as the fact that they show more severe symptomatology than other causes of blindness.

Two case histories are presented that show more autistic patterns and lack of self-differentiation from outside world, with the conclusion that there is a need for sensory stimulation and for more emotional and warm contact.

The author points out the dangers of institutionalization for any period of time, and the danger of overindulgence and protection, blocking the need for independence.

Kirtley, D. *The psychology of blindness*. Chicago: Nelson-Hall, 1975.

The book includes two main sections with sub-areas:

I. Attitudes toward blindness

1. Place of the blind in history
2. Symbolism of eyes and their dysfunction
3. Blindness in the arts
4. Research on attitudes

II. Blindness and personality

1. Prominent sightless persons
2. Investigations of adjustment
3. Empirical studies of dreaming
4. Study of personality through dreams

Kurzahls, I. W. Personality adjustment for the blind child in the classroom. *The New Outlook for the Blind*, 1970, 64(5), 129-134.

The author discusses the importance of societal and (more importantly) parental attitudes toward the physically impaired child and how they influence the child's personality growth. Problems due to poor self-image and inability to control environmental situations are often fostered as a result of the child being blind, with resulting confusion and anxiety.

The kind of educational program that will help a blind child to develop those personality traits which will allow successful integration into society revolves around three factors: 1) teacher attitudes and understanding; 2) teaching environment; and 3) teaching techniques.

Approaches stressed by the author to promote learning and personality growth in the visually impaired child include personal interest in the individual child, individual attention, purposefulness of what is being taught, incorporation of errors into the learning experience, and relating of present experience to past experience to facilitate notions of understanding similarities and contrasts between the two.

Lowery, F. The implications of blindness for the social caseworker in practice—Implications in the diagnostic process. In Samuel Finestone (Ed.), *Social Casework and Blindness*. New York: American Foundation for the Blind, 1968.

Discussed herein are many of the personality factors associated with blindness. There are sources of anxiety incident to blindness itself. Because of the inability to relate to the object world by visual means, the blind person is subject to nervous strain and feelings of insecurity and helplessness. Another major emotional concomitant of blindness is frustration. The blind person's responses to those frustrations may take the forms of regression, withdrawal, hostility, or aggression. Another possible factor discussed is the sense of inadequacy which is often resultant from blindness. Also discussed are dependency needs. It is concluded that emotional dependency is not an essential concomitant of blindness.

The author also delves into the implications of ego



strength. Criteria for assessing ego strength are set forth. An extrapolation upon adjustment mechanisms is also to be found, along with variables which condition adjustment. The author states that the choice of defense will be related to the client's premorbid personality structures, and that the disability itself is not a determinant factor in this choice. Finally, diagnostic problems with respect to personality evaluation are delineated.

Lowrey, F. The implications of blindness for the social caseworker in practice—Implications in the treatment process. In Samuel Finestone (Ed.), *Social Casework and Blindness*. New York: American Foundation for the Blind, 1968.

Various counseling techniques are described by the author, centering around three classifications: 1) administration of a practical service; 2) environmental manipulation; and 3) direct treatment.

The author suggests that a prerequisite for successful counseling is that the counselor have a working knowledge of the rights, services, and privileges available to blind persons, not only through specialized agencies, but through federal, state and local statutory provisions. The counselor must be aware of the major central sources of information concerning services for the blind. Also discussed are specific techniques and principles for interviewing the blind client.

Encouragement of participation in facing and solving problems is part of the counselor's role in building the ego strength of the client. Emphasis upon the client-worker relationship is stressed. The counselor should approach the client not as a blind person, but as a person who is blind. In conclusion, the author states that one of the major objectives of the counselor is that of helping the client to repair the damage to self through building a new value structure in which his self-perception is one of himself as a whole person.

Lukoff, I. F. Attitudes toward the blind. In *Attitudes Toward Blind Persons*. New York: American Foundation for the Blind, 1972.

The results revealed in this study indicate that there is no well-formed set of attitudes toward the blind; rather, the source of the problem is the relative lack of any guiding norms for situations where blind and sighted first encounter each other. However, some attitudes are more widely shared than others. These include protectiveness, patronizingness, and a "spread effect," in which blindness overwhelms all the other attributes of the non-sighted person. The author concludes that negative attitudes toward the blind are due to a lack of information or experience with blind persons who are independent.

The author posits that the attitudes, self-concepts, and goals of blind persons are likely to be influenced by significant others, who serve as reference groups. The blind person becomes the main source of their information on blindness, and if there are real choices open, then there is no ready accommodation to expressions of pity or sympathy.

MacFarland, D. C. Counseling the blind. In Maxwell H. Goldberg & John R. Swinton (Eds.), *Blindness Research: The Expanding Frontiers*. College Park: Penn State University Press, 1969.

Depicted is a counseling model which the author posits as consisting of five major components: 1) a performance component; 2) a goal-setting guidance and regulating component; 3) an amplifying component; 4) an

information-collecting component; and 5) a domain of consequences.

The author mentions the important and often overlooked aspect of residual vision and the part it can play in the client's total social and vocational life. Emphasis is given to the fact that the partially sighted person must be encouraged and trained to use his remaining sight to the maximum, but also must be cautioned about his limitations.

Also discussed in this presentation is the nature of the counselor's related nature toward the client. The author states that "In vocational rehabilitation, successful employment is the ultimate yardstick for measuring the counselor's success." The major counseling objective is to assist the client in assessing his own strengths and weaknesses so he can "sell" himself to an employer.

Finally, the author makes recommendations with respect to further research on the topic of blindness.

Manaster, A. L. & Kucharis, S. Experimental methods in a group counseling program with blind children. *The New Outlook for the Blind*, 1972, 66(1), 15-19, 25.

A group of adolescents, almost all of whom were totally and congenitally blind, were enrolled in a six-week program with the goals of improving mobility, skills, and proficiency in daily living activities, and making adjustments of personal and social problems. These individuals were from an institute for the visually handicapped and were considered "fairly well adjusted."

Two groups engaged in "orthodox" group sessions, and a third in "experimental methods." Emphasis was upon experience and discussion of "gut" feelings, role playing, and alter ego exercises. Results indicated that the experimental group "advanced a little further and a little faster" than the two orthodox groups. They discussed personal problems which frequently involved family situations. The impression was that many problems, questions, and concerns were those of any non-handicapped teenager.

Manaster, A. The theragnostic group in a rehabilitation center for visually handicapped persons. *The New Outlook for the Blind*, 1971, 65, 261-264.

The Illinois Visually Handicapped Institute in Chicago placed incoming clients in a time-limited, problem-oriented "theragnostic" group to prevent the negative reactions of many beginning clients. The use of a three-session group situation made available during the week-long evaluation period offered the visually handicapped clients an opportunity to handle their problems and reactions in a group that stressed a self-reliant, helping-onself-and-others type of atmosphere.

Magera, H. & Colonna, A. Aspects of the contribution of sight to ego and drive development. *The Psychoanalytic Study of the Child*, 1965, 20, 267-287.

The article presents a psychoanalytic approach to studying frustration tolerance, sublimation potential, anxiety, and developmental forces versus regressive tendencies. Six case studies of children with different blindness are cited.

Omwake, E. B. & Solnit, A. J. It isn't fair: The treatment of a blind child. *The Psychoanalytic Study of the Child*, 1961, 16, 352-404.

This study deals with the impact of congenital blindness on the establishment of object relations, secondary process functioning, and body image formation in a young girl. Discussed are factors which disturb ego consolida-



tion, such as anxiety resulting from a lack of a visual warning system. Also discussed is the unsuccessful infantile repression of the client, believed to be due to a deficit of two of the ego capacities that are forerunners to selective repression, namely: 1) a stimulus barrier that permits a protective sensory filtering to prevent the child's exposure to an overwhelming amount of stimuli; and 2) the visual component of mental imagery.

It is also suggested that education of blind children tends to "overexploit the speech development and the richness of the fantasy life." It is hypothesized that this overemphasis results in deficits in reality testing, and that development of the other sensory modalities would facilitate reality testing.

Raskin, N. J. Visual disability, in James F. Garrett & Edna S. Levine (Eds.), *Psychological Practices With the Physically Disabled*. New York: Columbia University Press, 1962.

The psychological implications of visual impairment are discussed. A number of relevant studies are presented and conclusions are explained. Personality factors, real limitations, and attitudes toward blindness are included in this chapter.

Routh, T. A. *Rehabilitation of the blind*. Springfield, Ill.: Charles C Thomas, 1970.

Group psychotherapy for the blind is emphasized. The author states it is the most important single approach to be used with a client who is blind. "Essentially, it is that type of situation in which the client is encouraged to express himself in connection with his personal experiences in dealing with others, and his feelings about those." This type of counseling, the author suggests, is best achieved in an atmosphere in which the individual is respected and where there is understanding, optimism, and a teamwork approach to problem solution. The central theme of such a session is how the client sees himself as a person. It should, however, be part of an overall psychosocial program.

The author goes on to say that the aim of any properly organized program of group work for blind people should be the determination of how reality influences them and how they structure their approaches to goals. Several goals are posited by the author as necessary achievements of group work. In conclusion, the author gives an outline for a program of group work.

Schulz, P. J. A group approach to working with families of the blind. *The New Outlook for the Blind*, 1968, 62(3), 82-86.

This article describes family influences upon the development and adjustment of the blind, including parental reactions to congenital blindness and family reactions to adventitious blindness. Families often react inappropriately to blindness primarily because of lack of proper information. The family must be prepared for emotional reactions of newly blinded persons.

The author deals with two basic problems of blindness: 1) physical adaptation and 2) emotional adjustment. Discussed are factors such as mobility, orientation, techniques of daily living, and recreation, which are considered important for the family's understanding and knowledge of the blind person's capabilities.

Telson, S. Parent counseling. *The New Outlook for the Blind*, 1965, 59, 127-129.

Telson discusses the special social and psychological ramifications of raising a blind child. She elaborates upon

the compensatory "gain from illness" that the parents of a blind child may acquire. Through social approval of the parents' untiring devotion, they may acquire a need to restrict their child's mobility and independence to maintain their gain. Telson stresses that parents rarely see themselves as contributing to their child's dependency and immaturity.

Thomson, S. H. & Mosher, J. R. An eye to change: Transactional analysis in rehabilitation. *The New Outlook for the Blind*, 1975, 69(2), 64-72.

A brief description of TA is given, followed by examples to illustrate TA concepts. Interwoven are suggested applications in rehabilitation settings, particularly with visually impaired clients. For example, the authors demonstrate how "ambivalent or negative attitudes toward blindness limit the transactions between the blind and the sighted."

Whiteman, M. A psychological appraisal of blindness. In Samuel Finestone (Ed.) *Social Casework and Blindness*. New York: American Foundation for the Blind, 1960.

Emphasis is placed on the challenges to self-concept fostered by blindness. The individual attributes negative attitudes to himself, believing that he no longer possesses such valued traits as self-sufficiency, economic independence, environmental mastery, or physical desirability.

Another reaction to the damaged self-image ensuing from blindness is denial of the disability and rejection of such blindness symbols as braille, the cane, or a guide dog. Yet another possible reaction is a focus upon the negative aspect of self to obtain secondary gain factors such as attention, sympathy, and even love.

The author states that present data are inconclusive in demonstrating specific personality factors related to blindness. Also, methodological difficulties in research further limit the generality of any of the findings.

Also discussed within the context of this work are psychological similarities and differences between the sighted and the blind, as well as factors differentiating the blind amongst themselves.

Wilson, E. L. Programming individual and adjunctive therapeutic services for visually impaired clients in a rehabilitation center. *The New Outlook for the Blind*, 1972, 66(7), 215-220.

Wilson discusses the use of therapy in a rehabilitation center for the blind. Factors include staff treatment, individual's unique characteristics, therapist's personality, and the time spent in the agency. Stages and types of psychotherapy are discussed, and also group therapy and psychodrama.

Wilson, E. L. Group therapy in a rehabilitation program. *The New Outlook for the Blind*, 1970, 64(7), 237-239.

Emphasis is placed upon the use of group therapy techniques in the rehabilitation of the blind. More specifically, experiences at The Lighthouse (New York Association for the Blind, N.Y.C.) indicate that this counseling technique is useful in helping clients to learn to cope with behavior reactions associated with the disability of blindness, such as: 1) feeling inadequate to the stress of undergoing rehabilitation; handling the meaning of their loss; 2) learning to accept reality in a flexible manner; 3) learning to cope with frustration and conflict; 4) coming to terms with guilt feelings; 5) handling shock and the period of mourning; and 6) learning to accept the altered body image.

The author stresses the fact that clients who have



successfully participated in group therapy at The Lighthouse have been able to work these reactions out by seeing that other group members have reacted in similar ways. "This process allows the clients to reach out to others, to make human contact." The program does not focus upon analytic alteration of the developed personality, but rather along re-educative and supporting lines using the interview technique which allows clients to enter and leave group sessions as they feel their needs require.

Wilson, E. L. A developmental approach to psychological factors which may inhibit mobility in the visually handicapped person. *The New Outlook for the Blind*, 1967, 61, 287-288.

The author discusses the blind person's reaction to immobility; this reaction varies with the individual's intellectual, emotional, interpersonal, and social ability. The family of the blind individual is considered to be an

important factor in this reaction to immobility.

Winton, C. A. The beautiful blind. *American Foundation for the Blind Research Bulletin*, 1971, June, 23, 9-29.

The article presents the results of interviews with 78 legally blind young adults in the San Francisco Bay area. The question was asked: "How can the blind, existing as they do in a social structure which is either non-supportive or too supportive, maintain a positive self-image and function as competent adults in our society?" The author delineates reasons why employment of the blind is so difficult and how this could result in negative self-image. Also discussed is the discrepancy between the client's views of the role of the vocational rehabilitation counselor and the counselor's view of himself, which leads to scapegoating on the part of the client when jobs are not found by the counselor. The study is limited to a narrow age range of population made up mostly of students.

## Blind Artists at the Canadian National Exhibition

A ceramic figure of a seated Eskimo hunter won first prize in the sculptural form section at this year's [1975] Canadian National Exhibition. A 24-inch high family group won the best of all categories in the wood sculpture section. These prizes were won in the open section against competition from some of the best artists in the country, including professionals. The only difference between this sculptor and the others is that he is blind.

DeWayne Deacon of Hamilton was a professional artist when he went blind at 46. He turned from painting to sculpturing and wood carving. His work is of such high calibre that his entry into the category for blind artists was rejected. In the open competition he won three firsts and a second. "I only entered four pieces," Deacon said. "Maybe I should have entered more."

In the blind category Lolly Annahatuk, an Eskimo from North West Territories, won first prize for her sculpture of an Eskimo mother and child. Ms. Annahatuk had never sculpted before and made the figure under the direction of Irene Norton in the CNIB's [Canadian National Institute for the Blind] Industrial Arts section. Vietta Martin entered numerous pieces of weaving and took six first prizes and one second. She received a special award from the Comradettes Club for her work. Another multi-winner was Miss K. Poulin from Montreal who took two first prizes with her knitting. This year 90 people entered a total of 296 separate pieces including sculpture, weaving, knitting and basket work.

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# The Way We Get Babies: A Tactual Sex Education Program

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■ The following program was developed to describe, in a simple but explicit manner, the process of intercourse and childbirth to visually handicapped children. Explaining these processes verbally to blind children only leads to confusion and faulty impressions. Utilization of thermoform representation of the processes would be very difficult for many blind children and impossible for some. Real life demonstrations would be impractical.

In this program, dolls constructed of simple materials were used to demonstrate intercourse and childbirth. The program is based on the premise that the blind children have developed a good healthy repertoire of play skills; playing with dolls being one of these skills essential to both boys and girls. If this has not been accomplished prior to the program, then this must be included in the preparation for its use. In addition, the program is to be used in the broader concept of sex education. The teacher or parent must provide the necessary introductions and explanations needed during the use of the program, as well as follow up discussions.

The program is presented to the individual child, by instructions on an audio tape. The child proceeds through eight stations: Box 1) Female doll; Box 2) Male doll; Box 3) Male doll with erection; Box 4) Male doll and female doll in intercourse position; Box 5) Female doll, four weeks pregnant; Box 6) Female doll, three months pregnant; Box 7) Female doll, nine months pregnant, child birth; and Box 8) Female doll after child birth, breast feeding infant.

## PRESENTATION

### Slide 1

I am sure you have seen a little baby. You know how soft and warm they feel, and how they wiggle and squirm when you hold them. They cry a lot too, don't they? It seems they have to be fed all the time and their diapers are always wet. But their mothers and fathers love them anyway.

Do you know how babies get here? Do you know how they are born? I'm going to explain to you how babies came to be.

In the beginning, a baby has to have a mother and father. They help each other to get a baby. Before we find out how they help each other, let us look at a mother and father doll without any clothes on.

Open the box marked "Number 1." In this box is a mother doll. You know, of course, that this is just a doll that is made out of cloth, thread, and yarn. It doesn't feel like a real person but you can think of it as a map. It gives you an idea of how things are.

Take the doll out of the box and hold it in front of you. Find her head, her eyes, nose and mouth. (pause) Move your hands down and you will find two round, soft swellings called breasts. (pause) In the center of each one is a small harder circle called a nipple. Now everybody has nipples. Even babies have nipples, but the large, softly rounded breasts are only found in women. Breasts begin to get bigger in girls when they are about ten years old, although they may be a few years younger or older than that. The mother will need these breasts for a very important reason when her baby is born.

Now move your hands down lower where the doll's abdomen or belly would be. Here you can find the navel or belly button. (pause) Everybody has a navel, men and women, boys and girls, and even tiny babies. This is where the umbilical cord used to be. I will explain this more later.

Move your hands below the navel to the area between the legs. (pause) You will feel some fuzzy material that is

**Abstract:** *This article presents an audio/tactual sex education program developed for visually handicapped children. The program covers the processes of intercourse and childbirth. Included in the article are the transcript of the tapes used in the program and the directions for making the tactual materials.*



supposed to be hair. This hair starts to grow in older girls and is a sign that they are becoming women. If you look carefully just below the hair you will feel an opening that goes into the doll's body. This opening is called the vagina.

When you hear the buzzer, stop the tape until you are ready to put the doll back into the box and move on to the next box.

**BUZZ**

**Slide 2**

Open the box marked "Number 2." In this box is a father doll. Hold the father doll in front of you so you can find his face. Father doll has a prickly beard around his chin. This hair on a boy's face starts to grow when he is about fifteen or sixteen. Of course, some boys may have hair grow on their faces earlier than this or later than this. Some men let this hair grow and have a beard like the father doll, but other men shave the hair off with a razor. They usually have to do this every day or two if they do not want a beard.

Move your hands down and you will find the nipples, although the father doll does not have the round breasts of the mother doll. (pause) A little lower you will find the navel. (pause)

Move your hands down lower toward the legs and here is some hair. This begins to grow in boys when they get older also. (pause) You can also see the penis which is about the length of a finger. Under the penis is a sac called the scrotum. Inside the scrotum are two oval-shaped glands called the testes.

When you are ready, put the father doll back in the box and move on.

**BUZZ**

**Slide 3**

Father and mother love each other very much. They like to hug and kiss each other. Sometimes this makes the father's penis big and it stands straight out.

Go to the box marked "Number 3." In this box is the father doll. You can see what the penis looks like when this happens.

**BUZZ**

**Slide 4**

When father's penis becomes big, he likes to put it in mother's vagina. It is pleasant for father and mother. They lie on a bed with father's penis in mother's vagina and then they move back and forth. This is called intercourse or making love. If the mother and father want a baby this is the time they can start one.

Mother and father love each other and they want to have a baby. This is how they bring it about. In the father's testes there are many sperm. These sperm are very, very tiny and can only be seen with a microscope. When the father and mother have intercourse the sperm come out through the father's penis. The sperm move through the vagina to a little pocket inside the mother's abdomen. The pocket is called the uterus. One of the sperm from the father's penis has found the egg in the uterus. The sperm is like a seed and can start the mother's egg growing. When this happens the mother becomes pregnant, that is, a baby has begun growing inside the mother.

Go to the box marked "Number 4." In this box you will find the father doll and mother doll.

**BUZZ**

**Slide 5**

For many days after intercourse, the father and mother do not know that the sperm has found the egg. But the sperm and the egg grow into a little ball inside the mother's uterus. This ball will become the little baby. The baby gets its food from its mother's body through a long rope-like cord called the umbilical cord. This cord is attached to the wall of the mother's uterus and to the center of the baby's abdomen.

In the next box, "Number 5," you will find the mother doll. Find the vagina. (pause) In this doll the vagina has been made very large so that you can reach your hand in and feel the uterus. In the uterus you can feel the umbilical cord and the small baby. It does not yet look like a baby. It has a head and a sort of tail. It is only four weeks old and still has a lot of growing to do.

In real life we could not feel the baby in the uterus like this. The baby actually grows inside of a bag that is filled with a special fluid. It is in that bag until just before it is born.

**BUZZ**

**Slide 6**

As the months go by, the baby gets bigger. Take out the mother doll in box "Number 6." (pause) Notice that as the baby gets bigger, so does the mother's abdomen. Inside the uterus, the baby is now about three months old. It is beginning to look like a baby with arms and legs. It begins to move around in its bag. The mother can feel the baby move inside her, and if the father puts his hand on the mother's abdomen, he can feel the baby move, too. Mother and father are very happy.

**BUZZ**

**Slide 7**

Many days go by. The baby gets bigger and mother's abdomen gets bigger. The baby gets stronger and moves its legs and arms around more and more. Nine months have gone by since father's sperm has found mother's egg during intercourse. Now the baby is ready to come out.

The mother tells the father that it is time for the baby to be born. She is ready to go to the hospital. Mother lies on a bed in the hospital waiting for the baby to start being born. A doctor waits nearby to help the mother and baby.

Go to box "Number 7." Take the mother doll out of the box and place her on her back on the table. Have her legs facing you. (pause)

In real life, the bag containing the fluid would open and the fluid would come out through the vagina. This means that the baby is about to be born. This does not happen, of course, with our doll. But our baby is ready to be born. The mother's vagina opens up very wide to let the baby get out. The baby has turned around so its head is first to come out. The mother's muscles push the baby out of the uterus and out of the vagina. The doctor stands by ready to hold the baby as it comes out. The baby is still attached to the mother by the umbilical cord. The mother holds the baby and they rest together for a while. After a minute or two, the doctor ties and cuts the umbilical cord. This doesn't hurt the baby at all. The tied up piece of cord stays on the baby until it dries up several weeks later and falls off. But the baby is left with the navel, which marks the place where the cord was attached. That is why everyone has a navel.



# The Way We Get Babies





Take the baby out of the mother doll and see how a baby is born. This baby is a boy. It has a penis just like his father.

## BUZZ

### Slide 8

The mother and baby will rest for a few days in the hospital. Then father will take them home. Go to box "Number 8." Here the mother doll is ready to go home with the baby. On the baby you can find the piece of umbilical cord that will dry up and fall off in a few weeks. The mother is dressed to go home. Her stomach is smaller now and her vagina is smaller too. Her breasts are big though. They are filled with milk for her baby. The mother holds the baby in her arms, opens up the front of her dress, and places the nipple of her breast in the baby's mouth. The baby is very hungry. He sucks the nipple and drinks his mother's milk. He has a lot of growing to do while his mother and father watch over him and love him.

This is how we get little babies. If there is anything you don't understand, ask your mother or father or your teacher. They can tell you what you want to know or find some good books for you to read.

## DOLL CONSTRUCTION

### Materials Needed

- Fourteen yards of dark polyester knit fabric (45 inches) for bodies of dolls
- One-half yard of felt (45 inches) for facial characteristics, navels, and breasts of babies
- Three yards of velvet (45 inches) for embryo, fetus, and bodies of two babies
- Two yards of polyester quilted fabric (54 inches) for vaginas
- Two feet of silk (45 inches) for dress
- One and one half feet of corduroy or mohair (36 inches) for blanket
- Forty-four inches of one-half-inch rubber tubing for umbilical cords
- Six hollow rubber balls for uteri:
  - Two three-inch for unfertilized females
  - Two four-inch for post-partum and four-weeks pregnant doll
  - One six-inch for three-months pregnant doll
  - One ten-inch for nine-months pregnant doll
- Five feet of one-half-inch elastic for opening of vaginas
- Six one-half-inch styrofoam balls for testicles
- Six three-inch styrofoam balls for breasts of three female dolls
- Six five-inch styrofoam balls for post-partum female, three- and nine-months pregnant dolls
- Sixteen bags of polyester stuffing
- Six skeins of yarn for hair
- One package of very fine steel wool for beard, pubic, and chest hair
- Twelve straight pins to hold breasts in place
- Twelve buttons for nipples of females' breasts
- Six buttons, one-half-inch flat for males' breasts
- Eighteen buttons, one-inch for eyes of adult dolls
- Four buttons, one-half-inch, for eyes of babies
- Epoxy glue to seal uteri and vaginas together
- Scotch tape

### Sewing Instructions

Lay the pattern for the doll using double thickness. The arm, leg and foot patterns must be laid twice, so that there are four arm pieces, four leg pieces, and four foot pieces for each doll. Cut nine dolls in all. The two male dolls, and the first two female dolls, are cut using the same pattern. For the remaining female dolls vary the waistline as the pattern indicates. Two baby dolls must be cut, using the arm and leg patterns twice. Embryo and fetus must also be cut.

Pin and sew the pieces together, leaving the crotch seam open. Sew the foot piece to the leg piece and then attach the front to the back (leg and foot pieces). Leave the top seam open. Sew the arms in the same fashion; turn and stuff. Neck or shoulder seams of the torso should be completed now. Next, attach the arms to the torso, then sew the head pattern together, leaving a four-five inch opening for the neck. Finish machine stitching by sewing the side seams. Slip-stitch the head and lower limbs to the torso by hand (turn and stuff before stitching). Stuff the torso, position the breasts (styrofoam balls) in place, using straight pins to hold in place. Three female dolls will take three-inch diameter balls (two normal, one four weeks pregnant) and three will have five-inch diameter balls for breasts (post-partum, three- and nine-months pregnant).

Making hair for the female dolls can be done by wrapping the yarn around the width of a large textbook (about 17-inches) for the entire length of the book. Then, scotch tape yarn at the binding. After taping, cut the yarn at the fore-edge and remove from the book. Stitch with the sewing machine over the tape to hold the yarn together; the tape can now be removed. Attach the yarn to the head. For the male doll's hair, sew curls by looping yarn and knotting (the easiest way is to work in rows). Baby dolls can have small curls on the top of their heads.

Facial characteristics, composed of eyes, nose, and mouth (the same for all 11 dolls) can be sewn and glued on. First, cut the felt to size. Then, place a small amount of polyester filling under the nose to give a three-dimensional effect. Tuck the bottom portion of the nose piece under and slip-stitch the nose to the face. Glue the mouth on the face.

Next, sew the buttons (nipples) on the chests of the dolls. Glue and stitch a small amount of steel wool on the male dolls' chests and on all nine adult dolls for pubic hair. Using felt, cut and glue a vertical oval navel to the abdomen of the nine adult dolls. One baby doll should have a two-inch rubber tube with a knot, stitched to the abdomen to serve as an umbilical cord.

For the male dolls, the pattern for the scrotums and penises should be laid, cut, and sewn leaving the top open. Turn and stuff. The two large penises are erected and should be stuffed tightly. The smaller penis should be stuffed very loosely. All scrotums should have two styrofoam balls (one-half-inch) in the pocket. Attach one scrotum and one penis to each male doll at the crotch, closing the seam completely (using slip-stitch). the erected penis may have to be tacked near base to maintain erected position.

For the female dolls, cut a one-inch opening in the two three-inch rubber balls, a two-inch opening in the two four-inch rubber balls, a three-inch opening in the six-inch rubber ball, and a four-inch opening in the ten-inch rubber ball.

Sew seam of quilting materials (vagina patterns) to form a cylinder. Turn seam and insert elastic. Then glue with epoxy the appropriate ball to matching quilted cylinder. Fit the ball inside the wide end of the cylinder. Make sure that the



# The Way We Get Babies

opening of the ball aligns with the orifice of the cylinder, so that fingers can be inserted through the cylinder, into the ball. The sex organs can now be placed in the three dolls through the crotch opening. Slip-stitch in place and close the crotch seam.

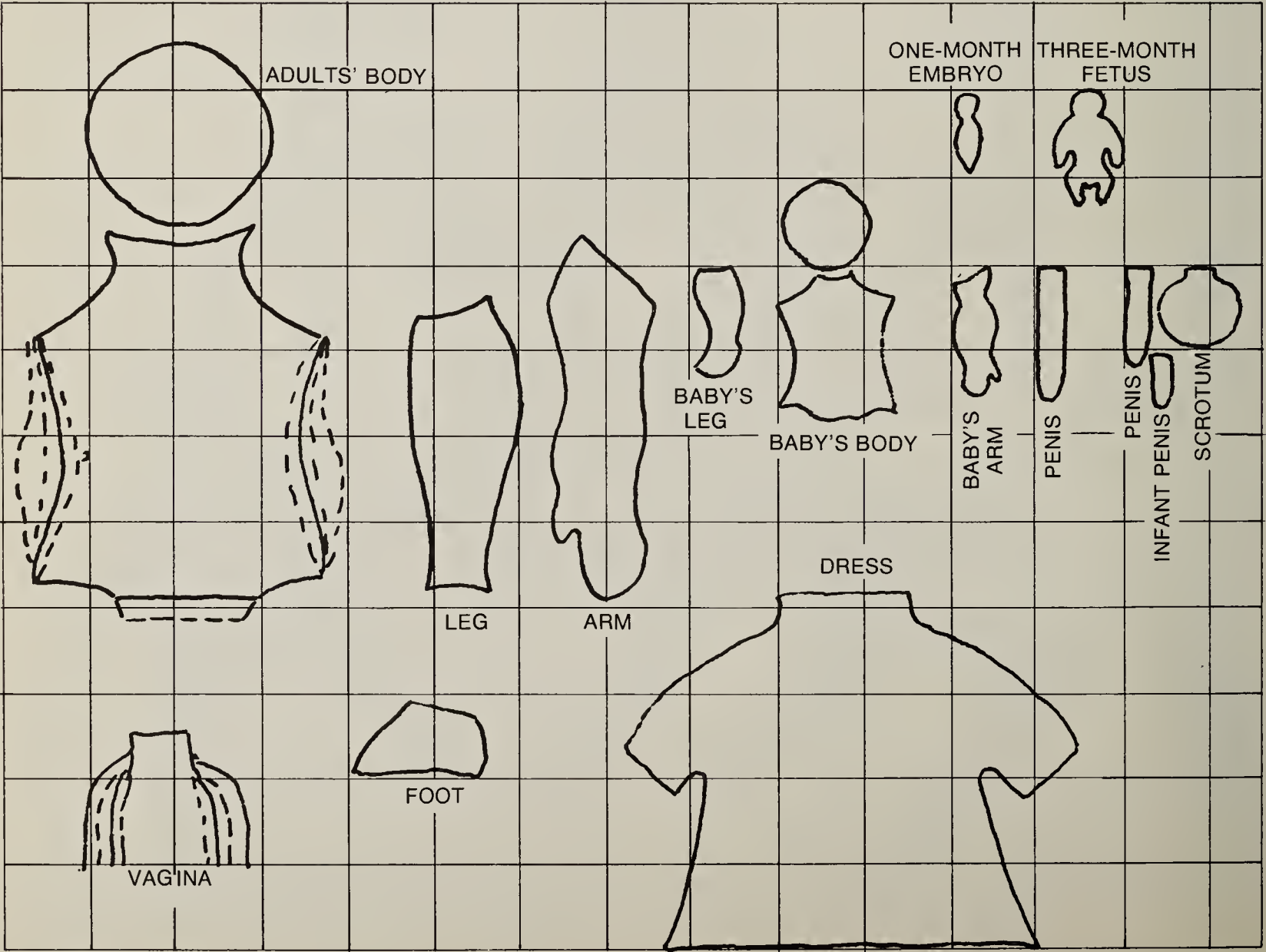
The three fertilized dolls need an opening in the uterus for the umbilical cord. Cut three pieces of rubber tubing—one should be 18 inches (nine-month baby), one 12 inches (three-month fetus), and one eight inches (one-month embryo).

Then, lay, cut, sew, turn, and stuff patterns for the one-month embryo and the three-month fetus. Sew rubber tubing to the abdomen of the three babies and place them in the uteri. Pull cord through the opening for umbilical cord and knot to hold in place. Sew seam of the crotch around the orifice on the three dolls.

Follow the patterns in cutting the dress and blanket. The edge of the blanket can be finished off by using the zig-zag stitch. Sew side and shoulder seams of the dress, turn and hem the edges using zig-zag stitch. Cut the bodice vertically to allow for breast-feeding. Then put the dress on the post-partum doll (box 8) and place the wrapped baby in her arms. It will be necessary to tack the arms of the mother to hold the baby in place.

Finally, dolls can be placed in their boxes. It is recommended that the dolls in box 4 (intercourse) be tacked together to keep them in position.

DOLL PATTERNS  
Scale: 1/2" = 4"





# Summer Camping Programs For Visually Handicapped Persons

For information on particular camps, write directly to sponsoring agencies. Some of these camps appear in the *Directory of Agencies serving Blind Persons in the United States* published by the American Foundation for the Blind, Inc., New York, N.Y. and in the *Directory of Camps for the Handicapped* published by the National Society for Crippled Children and Adults, Chicago, Illinois. Inclusion in this listing does not signify endorsement, nor does omission imply disapproval. Camps which have met the standards of the American Camping Association are designated—"ACA." In addition to these camps there are many non-specialized summer camps throughout the country which visually handicapped children can attend.

## Name of Camp

## Sponsoring Agency

### CALIFORNIA

Easter Seal Day Camps  
operates two day camps:  
Roeding Park, Calif.  
Special camp for local  
visually handicapped  
children.  
Age range: 7-18

Easter Seal Society for  
Crippled Children and  
Adults of Fresno County  
245 N. Calaveras Street  
Fresno, Calif. 93701

Camp Bloomfield  
(also Day Camp)  
Malibu, California  
Age range: 6-21  
(ACA)

Foundation for the  
Junior Blind  
5300 Angeles Vista Blvd.  
Los Angeles, Calif. 90043

Enchanted Hills  
Napa, California  
Age range: Children and  
adults  
(ACA)

San Francisco Light-  
house for the Blind  
1097 Howard Street  
San Francisco, Calif.  
94103

Camp Edwards  
San Bernadino Mts.  
California  
Age range: 7 and up.

Camp Executive  
Y.M.C.A.  
500 East Citrus Avenue  
Redlands, Calif. 92373

### CONNECTICUT

Kiwanis Easter Seal Day  
Camp  
Age range: 5 and up.

Easter Seal Rehabilitation  
Center of Greater  
Waterbury, Inc.  
22 Tomkins Street  
Waterbury, Ct. 06708

### DELAWARE

Landis Lodge  
Newport Cap Pike, Del.  
Age range: Children and  
Adults

Delaware Association for  
the Blind  
800 West Street  
Wilmington, Del. 19801

Sunnybrook Day Camp  
Age range: 8-16

Delaware Association for  
the Blind  
800 West Street  
Wilmington, Del. 19801

### DISTRICT OF COLUMBIA

Program for the Mentally  
Retarded and Physically  
Handicapped  
Age range: 6-18

Government of District of  
Columbia—Dept. of  
Recreation  
3149 16th Street, N.W.  
Washington, D.C. 20010



**Name of Camp****Sponsoring Agency****GEORGIA**

Camp Wiki Waki  
Camp Pine Acres  
Acworth, Ga.  
Age range: 10-17

Northwest Georgia Girl  
Scout Council, Inc.  
40 - 16th Street, N.W.  
Atlanta, Ga. 30309

**ILLINOIS**

Green Valley Camp  
501 E. Poplett's Hollow  
Road  
Peoria, Ill. 61614

The Salvation Army  
Box 1468  
Peoria, Ill. 61601

\*Serves children from  
Salvation Army from Iowa

**IOWA**

See Illinois and Nebraska

The Salvation Army  
219 East Court Avenue  
Des Moines, Iowa 50309

**KENTUCKY**

Kamp Kysoc  
Carrollton, Kentucky  
Age range: 8-19  
and young adults

The Kentucky Easter Seal  
Society for Crippled  
Children and Adults, Inc.  
P.O. Box 1170  
Louisville, Ky. 40201

**LOUISIANA**

Camp Rest-A-While  
Mandeville, Louisiana  
North Shore of Lake  
Pontchartrain  
Age range: Adults and  
teenagers.

Mr. Doug Douglas  
Recreation Director  
Lighthouse for the Blind  
in New Orleans  
123 State Street  
New Orleans, La. 70118

**MAINE**

Pine Tree Camp for  
Crippled Children  
Oakland, Maine  
Age range: 8-16  
(ACA)

Pine Tree Society for  
Crippled Children and  
Adults  
84 Front Street  
Bath, Maine 04530

**MARYLAND**

Mar-Lu Ridge Camp\*  
Jefferson, Md.  
Age range: 8-9  
14-16

The Maryland School for  
the Blind  
3501 Taylor Avenue  
Baltimore, Md. 21236

\* for students of Maryland  
School for the Blind only.

**Name of Camp****Sponsoring Agency****MASSACHUSETTS**

Sunlight House  
Scituate, Mass.  
Age range: Older adults.

Massachusetts Assoc.  
for the Blind  
120 Boylston Street  
Boston, Mass. 02116

Summer Camp for Blind  
Girls  
Bedford, N.H.

Camp Allen Inc. for  
Blind Girls  
P.O. Box 222  
Centerville, Mass. 02632

**MICHIGAN**

Chicago Common Farm  
Camp  
New Buffalo, Michigan  
Age range: Infancy to  
senior citizen

Chicago Commons  
Association  
915 N. Wolcott Avenue  
Chicago, Ill. 60622

Children's Manor Camp  
Berrien Springs,  
Michigan  
Age range: 5-10

Esther M. Hecht, R.N.  
Director of Camp  
South Shore Nursery  
School  
400 E. Randolph Street  
Outer Dr. East—Apt. 1310  
Chicago, Ill. 60649

**MINNESOTA**

Camp Knutson  
Age range: 8-30

Mr. Dan Mason  
Camp Director  
Box 495  
Lindsborg, Ks. 67456

Silver Lake Camp  
Age range: Adults  
(ACA)

The Salvation Army  
1516 W. Lake Street  
Minneapolis, Minn. 55408

**MISSISSIPPI**

Gulfside Assembly Camp\*  
Waveland, Miss.  
Age range: Teenagers  
and adults

Mr. Doug Douglas  
Recreation Director  
Lighthouse for the Blind  
in New Orleans  
123 State Street  
New Orleans, La. 70118

\* clients of Lighthouse.

**MISSOURI**

Summer Camp at Swope  
Park  
Shelter House #2  
Age range: 6-12

Kansas City Association  
for the Blind  
1844 Broadway  
Kansas City, Mo. 64108



<b>Name of Camp</b>	<b>Sponsoring Agency</b>
Sherwood Forest Camp Cuivre River State Park Troy, Mo. 63379 Age range: 9-16 (ACA)	Sherwood Forest Camping Service 7 North 7th Street St. Louis, Mo. 63101
<b>NEBRASKA</b>	
The Salvation Army Camp Gene Eppley Route 3 Omaha, Neb. 68123 Age range: Youth to older adults	The Salvation Army 523 North 20th Street Omaha, Neb. 68102
Various camps through- out the United States Age range: 8-19	National Camps for Blind Children 4444 South 52nd Street Lincoln, Neb. 68506
<b>NEW HAMPSHIRE</b>	
Camp Allen Bedford, New Hampshire Age range: Girls	See Massachusetts
<b>NEW JERSEY</b>	
Diamond Spring Lodge Denville, N.J. Age range: Women and married couples	New Jersey Foundation for the Blind 46 Franklin Street Newark, N.J. 07102
Camp Marcella Marcella, N.J. Age range: 5-16	Commission for the Blind and Visually Impaired 1100 Raymond Blvd. Newark, N.J. 07102
Camp Hope East Hanover, N.J. Age range: 6-Adulthood	Camp Hope % New Jersey Association for Retarded Children Essex Unit 62 62 N. Walnut Street East Orange, N.J. 07017
<b>NEW YORK</b>	
Camp Hope R.D. 3 Carmel, N.Y. 10512 Age range: 6-16	Marie L. Olson, R.N., M.S. Supervisor—Camp Hope Lakeside Bible Conference P.O. Box 92 88 Southern Parkway Plainview, L.I., N.Y. 11803
Camp Goodwill (Also Day Camp) Chittenango, N.Y. Age range: 5-18	D. K. Post 1138—Syracuse Hotel Syracuse, N.Y. 13202

<b>Name of Camp</b>	<b>Sponsoring Agency</b>
Camp Shelter Island Shelter Island, N.Y. Age range: 18-80	Brooklyn Bureau of Community Service and Childrens Aid Society 285 Schermerhorn Street Brooklyn, N.Y. 11217
River Lighthouse Cornwall-on-Hudson New York Age range: 50 and over and Camp Lighthouse Waretown, N.J. Age range: 12-80	The New York Associa- tion for the Blind 111 East 59th Street New York, N.Y. 10022
Vacation Camp for the Blind Spring Valley, N.Y. Age range: 18-90	Vacations and Community Services for the Blind 117 West 70th Street New York, N.Y. 10023
Camp Wagon Road Chappaqua, New York Age range: 7-17	Intake Worker—Camp Wagon Road The Childrens Aid Society 150 East 45th Street New York, N.Y. 10017
Camp Marydale Melville, L.I., N.Y. Age range: 6-14	Catholic Charities Special Services Diocese of Rockville Center 272 Merrick Road Lynbrook, L.I., N.Y. 11563
Camp Wapanacki Hardwick, Vt. 05843 Age range: 7-21	New York Institute for the Education of the Blind 999 Pelham Parkway Bronx, N.Y. 10469
Summer Camp— Day Camp* Yonkers, N.Y. Age range: 50-90	The Jewish Guild for the Blind 15 West 65th Street New York, N.Y. 10023
* clients of the Jewish Guild for the Blind.	
The Industrial Home for the Blind Day Camp S.U.N.Y. at Farmingdale College Long Island, N.Y. Age range: 3-14	IHB Services for Blind Children 329 Hempstead Turnpike West Hempstead, N.Y. 11552
<b>NORTH CAROLINA</b>	
Camp Dogwood Sherrills Ford, N.C. Age range: 7 and up	North Carolina Associa- tion for the Blind 2415 F—Crabtree Road Raleigh, N.C. 27609

<i>Name of Camp</i>	<i>Sponsoring Agency</i>
<b>OHIO</b>	
Camp Allyn Batavia, Ohio Age range: 8-15 and up.	Camp Allyn—Stepping Stones Recreation for the Handicapped 5650 Given Boulevard Cincinnati, Ohio 45243
Highbrook Lodge Chardon, Ohio Age range: 8-80 (ACA)	The Cleveland Society for the Blind Sight Center 1909 East 101st Street Cleveland, Ohio 44106
Camp Cheerful (Also Day Camp) Strongsville, Ohio Age range: 8-17	Society for Crippled Children of Cleveland 14587 Madison Avenue Cleveland, Ohio 44107
Toledo Society for the Blind Camp Catawba Island, Ohio Age range: 15-74	Toledo Society for the Blind 1819 Canton Street Toledo, Ohio 43624
Wykaky Camp Morrow, Ohio Age range: 16 and up	Goodwill Industries of Dayton, Inc. 201 West Fifth Street Dayton, Ohio 45402
<b>PENNSYLVANIA</b>	
Beacon Lodge—Camp for the Blind Mount Union, Pa. Age range: 6 and up	Beacon Lodge—Camp for the Blind P.O. Box 222 658 Valley Street Lewistown, Pa. 17044
<b>SOUTH DAKOTA</b>	
Jaycee Camp for Handi- capped Children, Inc. 101 West 9th Street Sioux Falls, S.D. 57102 Age range: 6-18	Augustana College Department of Special Education Sioux Falls, S.D. 57102
<b>TEXAS</b>	
Camp Soroptimist Route 1 Argyle, Texas 76226 Age range: 6 to adult (ACA)	Soroptimistic Club of Dallas 6162 E. Mockingbird Lane Dallas, Texas 75214

<i>Name of Camp</i>	<i>Sponsoring Agency</i>
Texas Lions Camp for Crippled Children Kerrville, Texas 78028 Age range: 7-16	Texas Lions Camp for Crippled Children P.O. 247 Kerrville, Texas 78028
<b>VERMONT</b>	
Camp Wapanacki Hardwick, Vermont Age range: 7-21	See New York
<b>VIRGINIA</b>	
Camp Easter Seal Summer Treatment Center New Castle, Va. Age range: 8-16 17-and up	Virginia Easter Seal Society for Crippled Children and Adults, Inc. P.O. Box 5496 Roanoke, Va. 24012
<b>WASHINGTON</b>	
Camp Volasuca Sultan, Wash. Age range: 18-19 and over (ACA)	Volunteers of America 2801 Lombard Avenue Everett, Wash. 98201
<b>WEST VIRGINIA</b>	
Camp Galahad, Inc. Charleston, W.V. Age range: 6-20	West Virginia Camping Association for Blind Children Anmoore, W.V. 26323 c/o Mr. Victor Gonzales
The Seeing Hand Asso- ciation, Inc. 737 Market Street Wheeling, W.V. 26003 Age range: 17-60	Miss Ethel Clare Elikan Executive Director The Seeing Hand Asso- ciation, Inc. 737 Market Street Wheeling, W.V. 26003
<b>WYOMING</b>	
Wyoming Lions Summer School for the Blind Cheyenne, Wyo. Age range: 8 and up	The State of Wyoming Services for the Visually Handicapped State Office Bldg. West Cheyenne, Wyo. 82001
Allen Stewart Camp for the Blind Casper, Wyo. Age range: 8 and up	Wyoming Lions Summer School for the Blind c/o L. W. Kistler, Jr. Box 3019 Casper, Wyo. 82601



# Comment

*A special forum for individuals to respond in detail to material published in the New Outlook for the Blind or elsewhere, to present new ideas, or to raise issues which relate to the specialized field of work with blind and visually handicapped persons. Contributions should be 350-1000 words in length.*

## Establishment of "Love, Room, and Board" Settings for Deaf-Blind Children

**Gary Dean Yarnall, Ed.D.**

After the Louisiana State Department of Education established the position of a State Coordinator of Sensorially Impaired Children, the new coordinator set out to develop a comprehensive state program that would eventually provide services to every deaf-blind child in the state.

At that time 139 children in Louisiana had been identified as deaf-blind. Four classrooms were already operating under the State Department of Education. These programs, in Baton Rouge, Lafayette, New Orleans, and Shreveport, were serving approximately 18 to 20 children. The teachers and aides in these programs had been functioning for more than a year without direct guidance or supervision from anyone trained to work with sensorially impaired children. Only two of the 15 teachers and aides had any training related to teaching deaf-blind children. The others had received training in English, sociology, elementary education, speech, or lacked any college training at all.

The teachers and aides from each of the programs were spending nearly half of their time traveling about the state attempting to provide partial services to as many children as possible within a 20-to-50-mile radius of their programs. The rest of their time was spent working with local children who were able to obtain their own transportation to the classroom.

There were additional deaf-blind children who lived so far from the four programs that they were not receiving any structured educational services.

### Strategies for Developing a Program

The Bureau of Services for the Blind and the 66 local parish school superintendents cooperated in a survey that resulted in data on known blind, deaf, and deaf-blind children who were either in some type of program or on a waiting list for services. The actual number of children who met the National and Regional Deaf-Blind Center's definition of "deaf-blind" was reduced from 139 to 121. Nearly half of these 121 children were considered low functioning and resided within the Pinecrest State School and Hospital, Pineville.

The control and responsibility of the deaf-blind programs were transferred from the state department level to the local parish school systems. The classes were referred to as the Deaf-Blind Day Educational Programs (D-B DEPs). Each of the four D-B DEPs were administered and op-

erated as every other classroom within that local elementary school system. The state coordinator was on full-time call as consultant to the programs and made 50 visits to the four programs within the first school year.

The lack of training on the part of the teachers and aides within the D-B DEPs was partially alleviated through four weeks of intensive in-service training spaced throughout the year, follow-up visits to the classroom, and an open telephone line to the coordinator's office. Throughout these training experiences, the teachers and aides acquired skills in programming for deaf-blind children, and were subsequently able to work with a larger number of children more often and more consistently.

The teachers and aides discontinued traveling in the surrounding parishes. Inter-multi-parish compact agreements were negotiated whereby parishes adjacent to the four parishes that housed D-B DEPs pooled their resources and joined together to provide regional preschool programs for deaf-blind children. The Transportation Division from the State Department complemented these efforts by developing a new policy with procedures that financed transportation for sensorially impaired children within and across parish school boundaries. These cooperative efforts enabled more of the deaf-blind children to receive daily educational services.

### Love, Room, and Board

It became apparent at the beginning of the job that approximately 20 of the deaf-blind children within the state could not be adequately accommodated following the above strategies and efforts so additional alternatives were needed. If the plans to establish a comprehensive statewide program were to be fully realized, these remaining children must be served, too.

The decision was made to establish temporary foster home settings for the excluded deaf-blind children. In this way the homes could be located within easy access to existing transportation systems and permit the children to attend school daily while staying with concerned foster parents in stable home settings. They could maintain family contacts by traveling to and from their permanent homes on weekends and holidays.

Feedback from some of the parents of these deaf-blind children revealed that the idea of a "foster home" was aversive to some of the parents. They did not like the label "foster home" for it implied that they were giving their child up for adoption. The coordinator suggested that the foster home model be called "Love, Room, and Board" (LRB) settings.

The LRB label won immediate support from all individuals and agencies involved. It not only helped to neutralize any guilt feelings the real parents may have had, it also gave special status to the prospective LRB parents. It proved to be a phrase that people could both remember and support.

Armed with a viable concept and an appropriate label, efforts were quickened toward establishing this needful component of an overall plan to provide comprehensive services to the deaf-blind children in Louisiana. The program proved to be suc-

cessful all around. The LRB concept reduced the numbers of deaf-blind children on "waiting lists;" kept these deaf-blind children in full-time educational programs, at home on the weekends, and out of state institutions. It provided dignified settings for the real and foster parents, and solved the problem of establishing programs for low-incidence type subjects that are scattered throughout the state.

*Dr. Yarnall, formerly state coordinator of sensorially impaired children with the Louisiana State Department of Education, is now an assistant professor and coordinator of the vision program, Ohio State University, Columbus.*

## Consumer Participation in Agencies Serving the Blind

**Sam Negrin, M.S.W.**

One of society's contemporary conflicts is the struggle between those striving to maintain professional standards and those new constituencies who are challenging professionals in the name of consumerism. Consumerism is based on the claim that masses of people have the right to increased decision-making power regarding the kinds of services that they receive from society.

Many consumers claim that their hostility toward social agencies and rejection of services is not a matter of choice, but an act of despair. They feel that they have never had any options from which to make a choice. They insist that when they are offered full participation in the choice of specific services and in the evaluation of results of those services, then they will not only accept, but cooperate in and profit from the services.

Consumer power through consumer organizations is a relatively new phenomenon to society. Agencies are now confronted by the rise of organized, militant consumerism among groups which heretofore have been neither organized, militant, nor recognized as consumers. Rather, they were seen as "recipients" of services. Some people have attempted to differentiate between consumer and citizen participation by referring to the agency as the consumer and suggesting in market terms that our end product is "realized potential," or socialized people who can function in society. The "client" has been seen as raw material which is "processed" by the agency and supplied by society, which is the consumer of the "product." Following this concept agencies have seen their responsibility as creating a market for their product and being concerned about distribution of their product in a society where there is little demand for "increased human potential."

### Citizen Participation

"Consumer" will be used in this paper in the more traditional sense—that is, the client, the user of the agency services, and/or his family. Consumer participation,



as originally conceived, was intended to make agencies more responsive to the people who used their services. It was not designed as a major tool for social change. This was the realm of "citizen participation" in the democratic tradition. Since social service institutions have been closest to the socially and physically handicapped, they have been the major targets for consumer pressure by those groups. Recognizing the concept of strength in numbers, consumers have organized to exert the kinds of pressure which will bring about the changes they want.

The three major consumer organizations in the field of services for the blind are the National Federation of the Blind (NFB), the American Council of the Blind (ACB), and the Blinded Veterans Association (BVA). Each has a unique style and approach, but all have some characteristics in common as well. Rather than discuss these specific organizations, it might be more productive to examine the concept of consumer participation as an increased opportunity for agencies serving blind persons to make a truly meaningful contribution in helping to establish handicapped persons in society and in the world of work.

### Struggle for Power

Who is in a better position to tell agencies how well their methods work and to assist in developing more effective methods than the consumers of the agencies' services? But, to have effective consumer participation, it is necessary to develop skills and to be prepared to deal with some of the more difficult aspects of confrontation—not only with consumer demands, but also facing up to the agencies' shortcomings.

If the administrators of agencies truly believe that consumers have a contribution to make toward the agencies' ability to meet needs, then it should be recognized that the relationship with consumers need not be an adversary one. Of course, this is a two-way street and quite often agencies will be faced with consumer groups who for a variety of reasons feel it necessary to play the role of adversary. This may be due to frustration in past attempts at meaningful participation. It may stem from inadequate leadership, or even be related to struggles for power and control of agencies. One thing consumers have learned is that people, agencies, or organizations with power never willingly give up that power. But, consumers have also recognized that through organization and pressure they can achieve some of that power themselves.

### Consumers as Board Members

One of the areas consumers have zeroed in on is control of agency boards. This does not necessarily apply to agencies within the public sector, but they have not been totally immune to consumer pressure placed upon legislators and elected officials to give consumers a greater voice in the policies and programs which effect their lives. It will be difficult, but agency boards which traditionally have excluded consumers or have given disproportionate control to management and/or the community

power structure, are vulnerable. If there is going to be harmonious change there will have to be commitment on the part of the board members themselves. The agency executive will also have to play a major role—often as a mediator.

One way to effect a positive change is for public agencies to actively seek out consumers for positions on boards, and to sustain them in their roles as decision makers. Consumers must be given the means to participate actively and effectively—that is, it must be made as worthwhile for them to participate as it is for other board members. In many instances they will have to receive per diem and expense money.

### Consumers vs. Professionals

It is not only the board members who will have to make room for consumer participation. Professionals will also have to learn to share their authority and decision-making power. It is the responsibility of agency boards and administrators to examine the respective roles of consumers and professionals in an effort to reduce any conflict and minimize any tension that might arise.

There are positive benefits to more active consumer participation for both the consumer and the agency. Consumer involvement can be seen as an antidote to the problems of huge bureaucracies. It is necessary if the system is to be more responsive to the needs of its clients and to its own mission. Responsiveness to consumer demands is as realistic a goal for rehabilitation agencies as it is for big businesses. There is a positive relationship between consumer involvement and the achievement of therapeutic goals. For the service system it will provide an opportunity for new insights to guide interventions and treatment strategies.

*Mr. Negrin is the director of the Community Services Division, Program Planning Department, American Foundation for the Blind, New York City. This paper is based on a speech presented at the Hawaii workshop, services to the Blind seminar, June 4, 1975.*

## Review

**What Color Is the Wind?** produced by Allan Grant Productions, P.O. Box 49244, Los Angeles, California 90049. Color, 27 min., 16 mm. 1974. Purchase, \$375; rental, \$35.

### Reviewed by Dava Grayson.

"What Color Is the Wind?" is a film presenting scenes from the lives of twin boys, one sighted and one blind, during their third year of life. Events such as a day at nursery school, a trip to the supermarket, and an excursion to the beach are used to show how Lee, the blind twin, explores his world with the help of father, brother, and nursery school teacher. Lee's parents discuss how they feel about having a blind child, how

they plan to raise the two children, and their hopes for Lee's future. They say that they consider themselves lucky to have the twins and that they feel there must be a special reason that they were given a blind child to raise. They are optimistic about their blind son's future and provide learning experiences that will help him adjust to a sighted world. Indeed they do appear to be a particularly well-adjusted family and both children seem happy and eager to participate in the goings-on around them.

As a film, "What Color Is the Wind?" is well made. The photography is beautiful; the music is pleasant; the dialogue and commentary, good. It is sympathetic to its subject, on the whole, without being overly sentimental. According to its brochure, its intended audience is "schools, libraries, churches, service organizations, and film societies." And I would agree that for most of these groups it would provide an interesting and easy introduction to the subject of the visually impaired child. However, if this film is to be shown to parents of blind children or other groups who need more than a superficial view of the blind child growing up, then I would have certain reservations as to its value, and would be happier with less poetry and more content.

While its optimistic outlook is desirable—and wholly believable for this exemplary family, unfortunately the film starts at a point where the parents have already accepted and adjusted to their son's blindness. Although they mention the fact that they had to give up hope of Lee's regaining his sight, they never discuss any of the conflicts and problems they may have had initially. If they had done so, the film would probably have been more valuable to other parents of blind children, who could say to themselves, "These people had the same difficulties that I have, and look at how well things turned out." Also, though Lee's parents do say that they get some professional help, they do not go into the need for or nature of this assistance.

Another problem with the film, I feel, from this point of view of whether parents of blind children will be able to identify with the family or try to follow their example is the fact that Lee has a twin brother. While the two cute children make excellent film subjects, a sibling of the same age who can attend the same nursery school class and help his blind brother adjust to his surroundings is not something that presents itself to the average family.

Regarding Jeff, the sighted child, some interesting points were raised and not followed up. Although when the two children were together they appeared to get along quite well, when Jeff was asked what he thought it felt like to be blind, he replied, "Nothing." He went on to say that although he liked Lee, he thought that Lee did not like him because he was blind. Somehow in his words, though not his actions, he seemed to be conveying the idea that he considered his blind brother to be something less than a human being. Granted, he was being asked to deal with some pretty big questions for a three-year-old, but there was something here that needed to be explored further.

On the whole, however, this is a good film for the general audience and could be worthwhile for parents and others con-



cerned with visually handicapped children if used in conjunction with other information.

*Ms. Grayson is a New Outlook editor.*

**Tom Sawyer, Cassette Drama**, by American Learning Society, Inc., Washington, D.C., 1974. Directed by Abby Campbell Hunt, script by James Cutting, music composed by Mitch Johnson, Stephen Chapin and Rico Calle.

**Reviewed by Edward T. Ruch**

Some of my most cherished memories from earlier years are those shared with the various characters born of the imagination and experiences of Mark Twain. My favorite of all was Tom Sawyer and "that summer of all summers" when he discovered gold in McDougal's Cave. Tom's many escapades with Huck Finn and Joe Harper as river pirates on the Mississippi, and his experience with Becky Thatcher and Injun Joe when lost in McDougal's Cave, rank high in my fondest recollection of this—the most famous of all Mark Twain's treasures.

The delightful combination of voice, background music, and sound effects skillfully interwoven by a narrator are particularly well suited to the unique reader needs of the generation of visually handicapped children who are now ready to join Tom Sawyer and his friends in the many adventures that are so much a part of this timeless classic.

This cassette drama of Tom Sawyer provides the reader with a new dimension of literary pleasure not possible in the print version. Although this abridged reproduction from the original edition is prepared for commercial distribution to the "sighted market," the book requires little if any adaptation to serve as an ideal source of total reading enjoyment for a visually handicapped audience. The fact that the recording is in cassette form and 1 7/8 IPS makes it easier to handle and more compatible to the equipment available to the visually handicapped reader.

Those of us who still remember the magic of stories dramatized on "old time radio" can appreciate being a part of each episode via the facility of our imagination. If we keep in mind that many of the impressions and mental images formulated by visually handicapped people are largely a result of what has been learned through listening, it is easy to understand how one's imagination can make a recorded dramatization like Tom Sawyer a memorable experience.

A negative point of the production is the excessive use of actresses to portray male characters, such as Tom Sawyer and Joe Harper. However, the manner in which the abridged version is handled, combined with the skillful use of the "cassette drama technique," has produced a story that will lend many hours of listening pleasure to all children including the visually handicapped.

The American Learning Society, Inc., producers of this recording, has prepared a series of the American Classics for children in cassette drama form. If this production is

indicative of their quality, I would heartily recommend their introduction into the library of every visually handicapped child.

*Mr. Ruch is a regional consultant for the American Foundation for the Blind, New York City.*

## Editors' Choice

### Increased Opportunities for Sightless Secretaries

by Trudie Musier

Since the advent of the typewriter, there have been blind typists in the office environment. With the introduction of dictation equipment, their usefulness increased. There was little career growth available to a blind employee, however, because traditionally one advanced from the "typing pool" to a secretarial position—a move often not open to the blind person because of the obvious limitations. Word processing, with its separate correspondence career paths and the new office equipment developed for this system, has changed all that.

Management should be aware that reliance on dictating equipment and automatic typewriters enables blind employees to compete on an equal basis with sighted secretaries. Visually handicapped individuals are not at a disadvantage in performing the tasks in a word processing center. A qualified blind secretary should be able to advance through all levels of the correspondence secretary's career path, up to and including management.

### Recognizing New Opportunities

As word processing centers increase, more and more people are taking advantage of the opportunities offered within them for visually handicapped personnel. Business firms and schools are adapting their machines and programs to meet the special needs of the blind secretary.

At IBM, several methods have been developed to make it easier for the blind correspondence secretary. One of the simplest solutions developed enables the secretary to "read" where she is on the margin scale and to set tab stops. The glass window containing the margin scale on the IBM Mag Card "Selectric" Typewriter is removed and a pointer that moves along the scale as the element advances is inserted. A strip of plastic tape with dots on it is used to replace the margin scale. The dots on this strip are equivalent to the braille ruler and are easily recognized by the blind typist. By feeling where the point is against the dots, the typist is able to set margins and tab stops.

To help the secretary retrieve magnetic cards after they have been recorded and filed, a separate card with braille writing is

inserted into the folder with the magnetic card. The braille notes indicate the date, margin, tab stops and other pertinent information relating to the magnetic card.

### Emphasis on Training

In addition to making adaptations to the typewriters, more emphasis is being placed on training blind personnel to be correspondence secretaries. Schools for the blind, as well as regular schools with blind students are beginning to acquire magnetic equipment in order to train these students. The American Council of the Blind has established VISTA (Visually Impaired Secretarial Transcribers Association), a national organization of partially sighted or totally blind persons either training or employed in secretarial fields.

IBM has developed self-pace packages to help blind secretaries learn to operate magnetic media typewriters. These packages were prepared specifically for blind personnel and consist of prerecorded material to teach a blind typist to use the IBM Mag Card "Selectric" Typewriter and the IBM Mag Card II. Using one of the training packages, which can be obtained by contacting the local IBM Office Products Branch Office, a blind individual can learn to use magnetic media typewriters in a matter of days. (Since the announcement of the training programs last year, I am aware of 42 secretaries who have completed training and are employed operating mag card typewriters in word processing centers located in Miami, Chicago, Endicott, Cleveland, St. Paul, Rochester, Philadelphia, New York and Boston.)

There is no longer a limitation due to the blindness that secretaries can make to the success of a word processing center. Management must no longer place blind employees in a dead-end career because of their handicap. These secretaries are proving they are capable of performing as well as a sighted person and are insisting on being evaluated on the same basis.

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## Current Literature

*A report of significant new additions to the Migel Memorial Library of the American Foundation for the Blind, prepared by Elaine M. Siegel, librarian.*

### Assessment

**The Roughness Discrimination Test: Is It Valuable to a Rehabilitation Teacher?** by Thomas Hanson. *The Net* (Association of Rehabilitation Teachers, c/o Department of Blind Rehabilitation, Western Michigan



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University, Kalamazoo, Michigan 49001), No. 9, June 1975, pp. 10-15. In this study, 103 subjects completed the Roughness Discrimination Test, an instrument designed by Dr. Carson Y. Nolan to predict braille reading readiness. For each of 69 test items, the object is to identify the one square of sandpaper out of four with a different grit. In the current survey, involving groups of 11 categories of causes of blindness, as well as sighted persons, the test was not of value in predicting braille ability; it could, however, be interpreted to provide information as to attention span, direction following, work organization, work habits, and object exploration.

## Attitudes & Adjustment

**TLC—My Way (Tender Loving Care—My Way)**, by Marilyn Swieringa. The Institute for the Development of Creative Child Care (Grand Rapids, Michigan 49506), 1974, Unpaged. \$1.75. The author, blinded and a diabetic, has prepared this guide for the personnel of hospitals and other medical care facilities, to provide insight and practical suggestions toward enhancing care for the visually impaired patient. Cartoon drawings punctuate the need for special attention to such points as orienting the blind patient to his surroundings and retaining fixed positions of furniture and personal items; identifying oneself when entering the room and explaining procedures and events; adhering to regular meal schedules for diabetic patients and describing the content and arrangement of food and utensils on the tray; acknowledging the patient's abilities as well as disabilities. A full-length review appeared in the January 1976 issue of the *New Outlook*.

## Biography

**Ralph Sanders: The PR Executive, "Blind Activist,"** by William G. Conley. *The Braille Monitor* (National Federation of the Blind, 2652 Shasta Road, Berkeley, California 94708), November 1975, pp. 517-522. Interview with blind 29-year-old advertising and public relations executive Ralph Sanders. The article recounts how, despite a major in journalism, semester as editor of his college newspaper, and completion of the master's degree in journalism, Sanders was unable to obtain a job in the field of journalism. Turning instead to the area of public relations, he participated in a political campaign, and went on to co-found his own firm. At present, Sanders is also an executive officer of the National Federation of the Blind, and chairman of its Public Relations Committee.

## Demography

**A Follow-Up of Blind Diabetic Patients**, by Joseph W. Berkow, Arnall Patz, and Stuart Fine. *Annals of Ophthalmology* (Woodbine Publishers, Inc., 100 West Oxmoor Road, Birmingham, Alabama 35209), Vol. 7, No. 1, January 1975, pp. 79-82. Results of a nine-year survey (1965-1973) of 95 blind diabetic

patients using Seeing Eye guide dogs in 1964. A continuation of an earlier retrospective study concluded in 1965, the present report yielded inconclusive results, due primarily to the large percentage of patients lost to follow-up. As in the initial study, however, this follow-up strongly suggests that the life expectancy of the blind diabetic is still quite short (approximately 35.9—43.2 years), although perhaps not quite as short as originally indicated. Requests for reprints should be addressed to: Dr. Joseph W. Berkow, 4419 Falls Road, Baltimore, Maryland 21211.

## Education

**Multiply Successes When Introducing Basic Multiplication Ideas to Visually Handicapped Children**, by Carol Ann Dodd. *Education of the Visually Handicapped*. (Association for Education of the Visually Handicapped, 919 Walnut Street, 4th Floor, Philadelphia, Pennsylvania 19107), Vol. 7, No. 2, May 1975, pp. 53-56. Dr. Dodd, who is assistant professor of mathematics at Illinois State University, suggests techniques for the development of multiplication concepts, thinking strategies, and mastery of facts with visually handicapped pupils. She recommends the use of such audio devices as sing-a-long records and tapping games to teach multiplication facts. The instructional use of inexpensive manipulatives (brief directions for construction of these aids are included) such as embossed number "multi-cubes" and "matching boards," as well as large print or braille "multiplication tic-tac-toe" games, is also explained.

## Federal Benefits

**NWRO Supplemental Security Income Program Advocates Handbook**, edited by Adele M. Blong, Barbara Leyser and Steven J. Cole. Center of Social Welfare Policy & Law, Inc. (25 West 43rd Street, New York, New York 10036), 1975, 166p. Designed to provide lay advocates with information regarding the Social Security Administration's Supplement Security Income Program, a federal cash benefit program for aged, blind, and disabled persons with little or no income. Eligibility requirements, the workings of the program—application procedures, the hearing process, payment of benefits, etc., and state supplementation—are among the topics explained.

## History

**The Changing Status of the Blind; From Separation to Integration**, by Berthold Lowenfeld. Charles C Thomas, Publisher (Bannerstone House, 301-327 East Lawrence Avenue, Springfield, Illinois 62703), 1975, 323p. \$23.50. Part I provides a historical review of the socio-economic status of the blind—from separation, to ward status, to self-emancipation. Part II traces the trend toward integration into society. Changes in educational and rehabilitation policies favoring integration are described,

along with the advances achieved through technology, legislation, and self-organizations of the blind. Also discussed are the attitudes, economic forces, and agency system which hamper the integration process.

## Low Vision

**Low Vision**, edited by Eleanor E. Faye and Clare M. Hood. Charles C Thomas, Publisher (see address above), 1975, 298p. \$19.50. Proceedings of the Lighthouse Low Vision Service's Twentieth Anniversary Symposium, supplemented by lists of suggested references and photographs. The 35 papers comprising the volume concern the following topics: optical and non-optical aids, development of visual aids, surgical and medical advances in ophthalmology related to the low vision patient, field defects and optical management, vision rehabilitation from childhood, to the vocational years, to the geriatric population, driving with telescopes, models of low vision clinics, and training programs in low vision clinics.

## Low Vision Aids

**Non-Optical Aids with a New Twist**, by Dennis K. Kelleher. *Optometric Weekly* (Professional Press, Inc., 101 East Ontario Street, Chicago, Illinois 60611), Vol. 66, No. 30, September 4, 1975, pp. 822-825. Two aids, designed for the needs of the general public, have been utilized successfully to facilitate reading for some low vision patients. The yellow transparent plastic filter enhances contrast and readability when placed over purple ditto sheets, or over the material to be scanned (or the lens itself) of a closed circuit television camera. The other device employed is the lamp socket dimmer, permitting quick and easy adjustment of illumination and prevention of glare.

## Medical Sciences

**Orthokeratology: A "Cure" for Distorted Vision?** by Paul Martin. *The Lion* (Lions International, York & Cermak Roads, Oak Brook, Illinois 60521), Vol. 58, No. 5, November 1975, pp. 10-12. Report on the controversial practice of orthokeratology—altering the curvature of the cornea to restore normal vision, through a programmed series of contact lenses. The treatment has yielded the most success in patients with nearsightedness and small amounts of astigmatism, takes between one and two years, and costs approximately \$500–\$1,000.

## Radio Information Services

**Radio Information Services for the Print Handicapped; A Handbook for Local Use**. Corporation for Public Broadcasting (1111 16th Street, N.W., Washington, D.C. 20036), 1975, sections individually paged. \$10.00. Designed primarily for public radio station managers; looseleaf format for eventual

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updating and revision. Sections deal with considerations in initiating a service and the programs currently in existence; management (planning, financing, networking, legal issues); programming; and technical considerations in using SCA subchannels to distribute services. Numerous attachments and appendices (bibliography, manufacturers of SCA receivers, list of radio services for the print handicapped, etc.) supplement the individual articles, charts, and illustrations comprising the body of the work.

## Recreation

**Marathon**, by Janet Bixby. *Dialogue* (Dialogue Publications, Inc., Berwyn, Illinois 60402), Vol. 14, No. 3, Fall 1975, pp. 83-85. The specialized training and running techniques employed by blind runners Matthew Chow and Harry Cordellos are discussed. Particular emphasis is given to Cordellos' participation in the 26-mile Boston Marathon. With sighted running partner John Butterfield, Cordellos broke the three-hour record previously held by a blind contender in that competition.

# Publications of Note

*A classified listing of books, articles, directories, pamphlets, and other material of interest to the readers of the New Outlook for the Blind, prepared by the editors. Please write to the source listed in each entry if copies or more information is desired; the materials are not available from the New Outlook or the American Foundation for the Blind.*

## Agency Administration

**Administration and Management: A Selected and Annotated Bibliography**, by William G. Hills, et al. University of Oklahoma Press (1005 Asp Avenue, Norman, Oklahoma 73069), 1975. 182 p. \$8.95. A guide for public administrators, particularly those in human service organizations, who wish to expand their knowledge of management. The areas covered include organization theory, behavior and development, the administrative process, personnel management, and inter-governmental relations.

**On Becoming an Executive Director**, by Margaret Elbow. *Social Casework* (44 East 23rd Street, New York, N.Y. 10010), November 1975, pp. 526-530. The author discusses her experiences on becoming the executive director of a social service agency, and how she learned to cope with the stress and demands of the new role.

## Aging

**1975 New York State Legislation Affecting the Elderly**. New York State Office for the Aging (855 Central Avenue, Albany, New York 12206), 1975. 24 p. Single copy free. A summary of new laws passed in New York affecting the older population.

## Architectural Barriers

**Curb Cuts Should Benefit Everyone**, by Paul J. Schulz and Delmer Oldbury. *Accent On Living* (P.O. Box 700, Gillum Road and High Drive, Bloomington, Illinois 61701), Winter 1975, pp. 74-76. The present trend to remove architectural barriers presents special problems not only for engineers and designers, but also for physically handicapped persons. Persons with different physical disabilities often have different, and conflicting, needs. This article discusses the problems and solutions encountered by the Los Angeles Bureau of Engineering when it attempted to design curb cuts that would be beneficial to blind persons, as well as people who use wheelchairs.

## Attitudes and Adjustment

**Integrating Disabled Students Into a College Population**, by Judith Rustin and Robert Nathanson. *Social Casework* (44 East 23rd Street, New York, N.Y. 10010), November 1975, pp. 538-542. The interaction between disabled students and the college community is often mutually difficult. The authors maintain that focusing social work services on the difficult interaction can facilitate the adjustment process for both the student and the college community.

**Consider Understanding Disability as a Way of Life**, by Harriet M. Savitz. (Available from Sister Kenny, 1800 Chicago Avenue, Minneapolis, Minnesota 55404), 1975. \$3.00. A compilation of newspaper articles covering emotional and physical barriers, disabling diseases, and overcoming barriers through education, activities, and employment. Included are articles about organizations for the handicapped.

**Blindness—A Label**, by S. E. Bourgeault. *Education of the Visually Handicapped*, (1839 Frankfort Avenue, Louisville, Ky. 40206), March 1974, Vol. 6, No. 1, pp. 1-5. The author examines the patterns which are evident with respect to labeling and classification of blind people and the phenomenon of blindness. Labeling is seen as as "an inefficient technique society has adopted to manage its feelings and fears" about blindness. The limitations of the various classification systems utilized by educational, social, and rehabilitative personnel (e.g., "legal blindness," "educational blindness," etc.) are discussed, with the conclusion that the number of systems indicates that no homogeneous behavior or characteristic of "the blind" exists.

## Audition

**On Hemispheric Differences in Evoked Potentials to Speech Stimuli**, by R. Galambos, P. Benson, T. S. Smith, C. Schulman-galambos, and H. Osier. California University, La Jolla, Dept. of Neuroscience, 1975, 11 p. (NASA-CR-143137/N75-27744/2WJ) Paper Copy \$3.25, Microfiche \$2.25. Confirmation is provided for the belief that evoked potentials may reflect differences in hemispheric functioning that are marginal at best. Subjects were right-handed and audiologically normal men and women, and responses were recorded using standard EEG techniques. Subjects were instructed to listen for the targets while lying in a darkened sound booth. Different stimuli, speech and tone signals, were used. Speech sounds were shown to evoke a response pattern that resembles that to tone or clicks. Analysis of variances on peak amplitude and latency measures showed no significant differences between hemispheres; however a Wilcoxon test showed significant differences in hemispheres for certain target tasks.

**Clinical Applications of the Human Brainstem Responses to Auditory Stimuli**, by R. Galambos, and K. Hecox. California University, La Jolla, Dept. of Neurosciences, 1975, 19 p. NASA-CR-143134/N75-27741/8WJ. Paper Copy \$3.25, Microfiche \$2.25. A technique utilizing the frequency following response (FFR), obtained by auditory stimulation, whereby the stimulus frequency and duration are mirror-imaged in the resulting brainwaves, as a clinical tool for hearing disorders in humans of all ages is presented. Various medical studies are discussed to support the clinical value of the technique.

**Loudness Enhancement: Monaural, Binaural and Dichotic**, By R. O. Elmasian, and R. Galambos. California University, La Jolla. Dept. of Psychology and Neurosciences. 1975, 28 p. NASA-CR-143138/N75-27746/7WJ. Paper Copy \$3.75, Microfiche, \$2.25. It is shown that when one tone burst precedes another by 100 msec variations in the intensity of the first systematically influences the loudness of the second. When the first burst is more intense than the second, the second is increased and when the first burst is less intense, the loudness of the second is decreased. This occurs in monaural, binaural and dichotic paradigms of signal presentation. Where both bursts are presented to the same ear there is more enhancement with less inter-subject variability than when they are presented to different ears. Monaural enhancements as large as 30 db can readily be demonstrated, but decrements rarely exceed 5 db. Possible physiological mechanisms are discussed for this loudness enhancement, which apparently shares certain characteristics with time = order-error, assimilation, and temporal partial masking experiments.

## Bibliography

**Neural Mechanisms of Pain: A Selective Bibliography 1971—1974**. Brain Informa-





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tion Service, (BRI Publications Office, UCLA Center for the Health Sciences, Los Angeles, California), \$3.00. This reference bibliography includes reviews and theories, experimental studies in animals, and studies relating to pathological pain in humans. Subject categories within these parameters include neuroanatomy, neurophysiology, neurochemistry, psychological aspects, and therapeutic procedures.

**Electroretinography (A Bibliography with Abstracts)**, by P. W. Crockett. National Technical Information Service, Springfield, Virginia, 1975, 92 p. NTIS/PS-75/526/4WJ. Paper Copy \$25.00, Microfiche \$25.00. Research reports are cited on the use of electroretinography to study physiological processes of the eye. Included are studies on dark adaptation, color vision, visually evoked responses, visual performance, and radiation effects. Contains 87 abstracts.

**Speech Intelligibility: A Bibliography with Abstracts**, by Carolyn Shonyo. National Technical Information Service, Springfield, Virginia 1975, 190 p. NTIS/PS-75/669/2WJ. Paper Copy \$25.00, Microfiche \$25.00. This bibliography contains selected references to federally-funded research reports. The citations contain results of studies on the intelligibility of direct oral communication between humans. The bibliography also cites research on speech transmitted via voice communication systems and equipment. Studies on factors which enhance or interfere with auditory perception of underwater speech and helium speech are included.

### Braille, Large Type, and Recorded Materials

**Eating Right for Less.** Consumers Union (Box 65, 256 Washington Street, Mount Vernon, New York 10550). Large type. \$2.00. This booklet contains information on how to plan a balanced, nutritious diet for only \$10 per week. Included is an evaluation of foods (often by brand name) for nutritional and economic value.

### Catalogs

**CEC Catalog 1975-76.** The Council for Exceptional Children (1920 Association Drive, Reston, Virginia 22091). A complete listing of the periodicals, books, and non-print media available from CEC.

### Cortical Stimulation

**Artificial Vision for the Blind: Electrical Stimulation of Visual Cortex Offers Hope for a Functional Prosthesis**, by W. H. Dobelle, M. G. Mladejovsky, and J. P. Girvin. *Science*, (1515 Massachusetts Avenue, N.W., Washington, D.C. 20005), February 1974, Vol. 183, No. 4123, pp. 440-444. Electrical stimulation of the occipital cortex resulted in discrete photic sensations or



"phosphenes" in two volunteers who had been totally blind for seven and 28 years. Stimulation of multiple electrodes allowed one patient to recognize simple patterns, including letters. Both patients made an uneventful recovery, and the success of these experiments reinforces the hope that a functional visual prosthesis can be developed, although many problems remain to be solved.

## Deaf-Blind Persons

**Behavioural Change in a Deaf-Blind Multi-Handicapped Child**, by D. Tweedie. *Volta Review*, (3417 Volta Place, N.W., Washington, D.C. 20007), April 1974, Vol. 76 (4), pp. 213-218. Demonstrates the improvement in the behavior of a deaf-blind girl over a four-year period in a residential school. Ten observers rated what subject did in four situations on 24 nine-point scales. There were statistically significant effects for time, experience, behaviors, concepts, and their interactions. These results exemplify a way to show the effectiveness of special education programs.

## Education

**Issues in the Classification of Children**, edited by Nicholas Hobbs. Jossey-Mass, (615 Montgomery Street, San Francisco, Ca.), 1975. 2 Vols. \$35. This book, an outgrowth of the federal Project on Classification of Exceptional Children, examines current classification procedures—found to be often harmful, biased, or inadequate—and suggests new policies for more effective legislation and professional practice.

## Employment

**Disabled Veterans of the Vietnam Era: Employment Problems and Programs**, by Thurlow R. Wilson, John A. Richards, and Deborah H. Bercini. Human Resources Research Organization (300 N. Washington Street, Alexandria, Virginia 22314), 1975. \$9.50. This report describes the results of a study investigating the problems encountered by disabled veterans, and explores ways in which major problems might be solved in order to facilitate employment.

## Films

**The Blind, An Emerging Minority**. National Federation of the Blind (730 South Western Avenue, Los Angeles, Ca. 90005), 1975. 28 min. This film documents NFB's struggle to eliminate discrimination against blind persons in employment, education, transportation, public accommodations, and other areas.

## Form Perception

**Haptic Equivalence Matching of Curvature by Blind and Sighted Humans**, by P. W.

Davidson, and T. T. Whitson. *Journal of Experimental Psychology*, (1200 17th St., N.W., Washington, D.C. 20036), April 1974, Vol. 102, No. 4, pp. 687-690. A two-part experiment to investigate the relations between active handling, accurate haptic curvature matching, and task difficulty, using increases in the number of stimuli contained in comparison arrays to vary task difficulty. Of the subjects in Part 1, 24 had normal vision (mean age = 15 years) and 23, matched for IQ, were congenitally totally blind (mean age = 19 years). Subjects in Part 2 were 90 undergraduates. Blind subjects were more accurate than sighted subjects as task difficulty increased, and marked differences in exploratory search were noted between blind and sighted subjects. The blind's characteristic search strategy, infrequently used by the sighted, led to improved matching by sighted subjects restricted to its use. In the larger comparison-array conditions, the more stimuli in the comparison arrays, the more the scanning of the sighted subjects in each condition resembled that of the blind. It is concluded that an interaction between task requirements and search style may in part determine accuracy in judgments of form properties like curvature.

**Tactile Pattern Recognition and Body Loci**, by L. A. Scadden. *Perception*, (Pion, Ltd., 207 Brondesbury Park, London, NW2 5JN, England), Vol. 2, No. 3, 1973, pp. 333-336. Compares tactile pattern recognition on three body loci—back, abdomen, and inner thigh. Five congenitally blind college students, experienced users of a tactile vision substitution system (which displays images picked up by a television camera through patterns of vibratory stimulation on the skin), were asked to identify letter images displayed on the three body regions. Though previous experience had been limited to stimulation on the back, recognition accuracy and latency were significantly better on the abdomen. Results indicate that immediate transfer of previous learning occurs when body locus of stimulation is shifted, and further suggest that neural networks for tactile pattern recognition do not include specific peripheral neural receptors.

## Fund Raising and Philanthropy

**A Political View of the United Way**, by Stanley Wenocur. *Social Work* (49 Sheridan Avenue, Albany, N.Y. 12210), May 1975, Vol. 20, No. 3, pp. 223-228. United Way of America is a mainstay of the nation's philanthropy. It provides funds and planning for a system of private social services involving more than 36,000 local, state, and national agencies. This article explores the political nature of the United Way, reviews opportunities for changes in its internal policy, and examines the constraints relating to the admission of new organizations to the system.

**Bibliography of Fund Raising and Philanthropy**. National Catholic Development Conference (130 E. 40th Street, New York, N.Y. 10016), 1975. \$22.50. A bibliography of books and periodicals published through

March 1975 relating to the field of fund raising. Subjects covered include legal, sociological, political, historical, religious, and motivational aspects of fund raising and philanthropy. Yearly supplements available.

## Medical Sciences

**What Happens to the Human Lens In Cataract**, by Ruth van Heyningen. *Scientific American* (415 Madison Avenue, New York, N.Y. 10017), December 1975, Vol. 233, No. 6, pp. 70-81. Every year over a million people are afflicted by cataract. There is a partial remedy for the disease, removal of the lens, but no known means of preventing it. The author feels that the prevention of cataract requires a much improved understanding of the structure and metabolism of the human lens, the effects of external influences and the aging process on the lens, and the worldwide epidemiology of cataract.

## Orientation

**Studies of Orientational and Postural Mechanisms in a Model Neural System**, by L. S. Demski, and D. H. Bauer. New Mexico University, Department of Anatomy, Albuquerque, New Mexico, 1975, 53 p. (AFOSR-TR-75-0829) AD-A012 027/9WJ, Paper Copy \$4.25, Microfiche \$2.25. Utilizing eye movements as a measure of vestibular activity, regions of the brain involved in their control and in possible mediation of postural and orientational responses have been studied through electrical stimulation of the brain in anesthetized animals. A mapping of the brain has been accomplished. Experiments performed on chronically implanted animals indicate that stimulation of the brain in areas associated with eye movements in the anesthetized subject in most cases produces a postural change which could be predicted from the eye movements of the manually positioned animal. Therefore, the areas of the brain related to movements identified in the earlier studies are probably also involved in more complex postural and orientational responses.

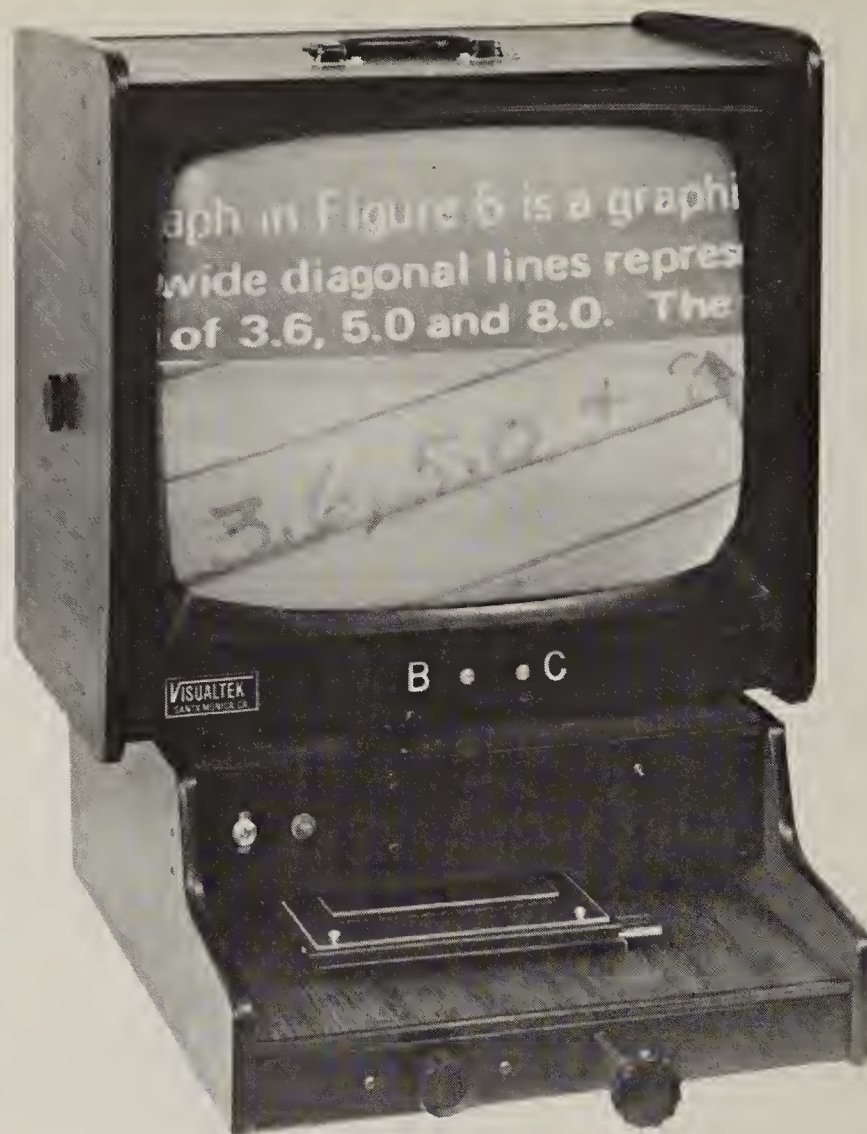
## Pamphlets

**Guide des Loisirs de la Region Parisienne**. CIDJ (101 Quai Branly, 75740 Paris Cedex 15, France), 1975. Contains addresses of clubs and sports activities for handicapped people in Paris and its suburbs.

## Physiology

**Biological Correlates of Cognitive, Sensory and Motor Abilities**, by John M. Talbot. Federation of American Societies for Experimental Biology, Bethesda, Maryland 1975, 33 p., AFOSR-TR-75-1124 AD-A013 616/8WJ. Paper Copy \$3.75, Microfiche \$2.25. The review of somesthesia attempts to highlight its biological correlates and to relate somatic sensory processes to be-





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havior. Current knowledge of the somaesthetic systems is summarized and significant gaps are noted.

## Rehabilitation

**A Follow-Up Study of Closed Vocational Rehabilitation Cases.** National Analysts, Inc., Philadelphia. 1974. 172 p. SRS-06954-001. PB-243 001/5WJ. Paper Copy \$6.25, Microfiche \$2.25. The study consists of a follow-up survey of about 4000 recipients of vocational rehabilitation services in six states over a three-year period (1967-1969). The objectives were to describe employment levels of VR cases after closure, to conduct cost/benefit analyses of services provided, and to identify salient characteristics associated with successful rehabilitants at the time of application. Data is based on personal interviews, case files, and records of service dollar expenditures.

**A System for Management of Selected Data in Medical Rehabilitation: A Monograph,** by C. V. Granger. Tufts University School of Medicine, Boston, Massachusetts, 1973. 104 p. (SRS-16-56800-003) PB-242 929/8WJ, Paper Copy \$5.25, Microfiche \$2.25. The report states as its premise that the traditional system for constructing medical records is outmoded and fails to adequately serve the special needs of medical rehabilitation. The purposes of this project were to define a minimum comprehensive data base oriented toward present and potential clinical problems. This was accomplished by the development and use of programmed forms for the patient's medical history, the report of the physical examination, and the laboratory results. The data from these forms is coded, typed on magnetic tape, and stored in the computer for future access and analysis.

## Sensory Perception

**Medical Requirements and Examination Procedures in Relation to the Tasks of Today's Aircrew: Evaluation of the Special Senses for Flying Duties,** by G. Perdriel. Advisory Group for Aerospace Research and Development, Paris, France, 1975. 94 p. (AGARD-CP-152, In English; some in French) N75-23084/7WJ. Paper Copy \$4.75, Microfiche \$2.25. Medical requirements and examination procedures in relation to sensory tasks of aircrews are reported.

## Vision Testing

**Evaluation of a Non-Professional Visual Screening Method,** by Bruce Wick, Gerry Meguire, and Melvin R. O'Neal. *American Journal of Optometry and Physiological Optics* (American Academy of Optometry, 115 W. Broadway, P.O. Box 441, Owatonna, Minnesota 55060), September 1975, Vol. 52, pp. 607-613. A screening method, designed to be administered by laymen, is evaluated and compared to the Modified Clinical Technique used by eye health professionals.

# News in Brief

■ The California State Department of Rehabilitation has announced that now persons having severe to moderate disabilities will receive the highest priority for vocational rehabilitation services from that state. The reason for the change in policy, according to State Director of Rehabilitation Edward V. Roberts, is to stop "... the practice of 'creaming' whereby only those persons with less severe disabilities are helped. This resulted in high statistics about the number of rehabilitations achieved. Consequently severely disabled people were excluded from service because their cases were considered more difficult and costly."

■ Overbrook School for the Blind, Philadelphia, has organized a small manufacturing company to provide realistic work experience to high school seniors. The manufacturing company follows the guidelines of regular corporations. There is ownership of shares of stock, a board of directors elected by the shareholders, five officers, and employees. The company, known as Overbrook Manufacturing, makes dish-washing sponges with handles, on a sub-contract basis. The student employees are paid by piece-work rates, and student officers receive salaries.

The second stage of work study program is actual part-time employment of the students by local companies including a bank, a major manufacturing corporation, a religious organization, a light industry.

■ According to a recent study, many parents of handicapped children feel that professionals (primarily doctors and social workers) don't want to become involved with them or their difficulties in coping with their children. The study, conducted by A. Merwyn Fox, chief physician of child health, Camden and Islington Area Health Authority, Great Britain, also revealed that parents feel there is a lack of counseling about the nature of the child's handicap, and what he or she can be expected to achieve socially and educationally.

Fox blames the training of the two professional groups as the foundation of the problem. A doctor's education is carefully designed to reduce his emotional involvement to help him function better in medical situations. However, it also reduces his ability to deal with the patient as a whole person. Social workers, for the most part, receive only a small background in family psychodynamics, and only sketchy information on dealing with physically or mentally handicapped children and their families.

■ Large print, higher mathematics tables are available from the National Association for the Education of the Partially-Sighted (Joseph Clarke School, Vincent Road, Highams Park, London E4 9PP, England).

■ At the 17th Universal Postal Union Congress, held in Lausanne, the problem was raised about the difficulty in determining whether articles had been accepted free of postage as literature for the blind. Part of

the problem was that the inscription, "free literature for the blind," was being written in a variety of positions on the packages. The Congress decided that the top right hand corner of the package (the space reserved for postage stamps) will be the required position for the endorsement. The regulation became effective in January 1976.

■ The Institute of Gerontology's 1976 *Catalog of Continuing Education Offerings*, is available. To receive the catalog and registration information, contact: Institute of Gerontology, The University of Michigan-Wayne State University, 520 East Liberty, Ann Arbor, Michigan 48109.

■ A research contract has been awarded to the Medical College of Virginia, Richmond, by HEW's National Institute of Environmental Health Sciences, to continue a detailed clinical evaluation of workers exposed to the pesticide, kepone. This chemical, which can be absorbed through the skin, inhaled or ingested, has been known to produce brain and liver damage, sterility, slurred speech, loss of memory, and twitches of the eye.

■ Human corneas donated by transplant surgery can now be preserved for days in a liquid that keeps them fresh and viable. The preservative fluid was developed by two ophthalmologists from the University of Florida, Dr. Bernard E. McCarey and Dr. Herbert E. Kaufman. Until now donated eyes had to be used almost immediately after removal, or stored by a freezing process that required equipment and highly trained specialists.

■ G. K. Hall and Co., publisher of large type books has announced the opening of its Large-Print Book Club. The club is designed after the popular Book-of-the-Month Club. Members will receive the digest *Large Print Review* each month informing them of the new titles available, and will receive a discount from the regular price of the books. For ordering information write to G. K. Hall and Co., 70 Lincoln Street, Boston, Mass. 02111.

■ A new cassette series, *Street Sex*, that deals with adult reading material, is now available from Home Services Enterprises (P.O. Box 19, Santa Maria, Ca. 93454). To receive ordering information interested blind adults should send a stamped, self-addressed envelope to Home Services Enterprises. In return a descriptive letter about the series will be sent, along with an authorization form that must be returned to the company with a legible signature.

■ The Chicago Public Library has announced the creation of a new library unit, Resources and Services Program Organized with New Direction (RESPOND). RESPOND is an outreach services program aimed at meeting the reading needs of the aging, inmates, and Spanish-speaking people.

■ The National Eye Research Foundation (18 S. Michigan Avenue, Chicago, Illinois 60603) has created a special fund to provide scholarships for optometry and



ophthalmology students, and to support blind youth activities.

■ Teacher training is the theme for the April 1976 issue of *Exceptional Children*, published by the Council for Exceptional Children (1920 Association Drive, Reston, Virginia 22091). Some of the subjects that will be covered include adult training, working with parents, and the roles of teacher aides and other paraprofessionals.

■ The Social Security Administration is planning to produce recorded editions of four pamphlets relating to Medicare, disability benefits, supplemental security income, and social security. These recorded pamphlets will be distributed in cooperation with the Library of Congress' Division for the Blind and Physically Handicapped. They will be available free of charge to blind and physically handicapped readers.

■ Two agencies have recently been accredited by the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped (NAC). The agencies are the Albany Association of the Blind, New York and the Vision Center of Central Ohio, Columbus.

## APPOINTMENTS

■ National Accreditation Council for Agencies Serving the Blind and Visually Handicapped: **Louis H. Rives, Jr.**, president.

■ American Foundation for the Blind: **Joseph C. Gawronski**, manager, aids and appliances division.

■ Chicago Lighthouse for the Blind: **Fred McDonald**, executive director.

■ Southern Illinois University, Carbondale: **Arthur Jackson**, coordinator of services for the blind and visually impaired.

■ National Eye Institute, new members of the National Advisory Eye Council: **Marian Atkins**, Cincinnati; **Tony Q. Chan**, Albuquerque and **Harry G. Sperling**, Houston.

■ Commission on Accreditation of Rehabilitation Facilities: **William M. Salyers**, chairman of the board of trustees.

■ Blinded Veterans Association: **Sumner A. Vale**, administrative director.

■ The Seeing Eye: **Robert L. Wichman**, director of the breeding farm.

■ Veterans Administration: **George M. Gillespie**, chief of blind rehabilitation.

## AWARDS

■ Albert Lasker Award: **Jules Stein, M.D.**, founder and chairman of Research to Prevent Blindness, New York.

## RETIREMENTS

■ The Jewish Guild for the Blind: **Bernard Krebs**, director of the braille library.

## COMING EVENTS

### March

**28-April 2** Second International Congress on Prosthetics Techniques and Functional Rehabilitation, Cannes, France.

### April

**4-9** Council for Exceptional Children, 54th Annual International Convention, Chicago.

**5-9** European Congress of Ophthalmology, Hamburg, Germany.

**7** World Health Day, "Foresight Prevents Blindness."

**9-13** American Occupational Therapy Association, Mid-year Meeting, Atlanta, Ga.

**28-30** President's Committee on Employment of the Handicapped, Annual Meeting, Washington, D.C.

### May

**10-13** Radio Reading Services, Second Conference, Minneapolis, Minn.

**11-12** National Braille Association, Regional Meeting and Workshop, Boston.

**14-16** American Ophthalmological Society, Kilauea, Hawaii.

**16-20** American Federation of Labor and Congress of Industrial Organizations, 18th National Conference on Community Services, Washington, D.C.

**26-29** American Speech and Hearing Association, Western Regional Conference, Portland.

### June

**13-16** National Conference on Social Welfare, 103rd Annual Forum, Washington, D.C.

**13-28** XIII World Rehabilitation Council, Tel Aviv, Israel.

**23-26** Alexander Graham Bell Association for the Deaf, Biennial Convention, Boston.

**26-July 1** American Medical Association, Annual Convention, Dallas.

**27-July 2** American Physical Therapy Association, New Orleans, La.

**28-July 2** American Home Economics Association, Annual Meeting, Minneapolis, Minn.

### July

**5** National Federation of the Blind, Los Angeles.

**5** American Council of the Blind, Hot Springs, Ark.

**5** Association for the Education of the Visually Handicapped, Louisville, Ky.

### August

**29-September 3** International Committee for Education of the Deaf-Blind, Sixth International Deaf-Blind Seminar, Sydney, Australia.

### September

**12-16** American Academy of Ophthalmology and Otolaryngology, Las Vegas.

### October

**11-15** American Occupational Therapy Association, Annual Meeting, San Francisco, Cal.

**15** White Cane Day.

**17-21** American Public Health Association,

Annual Meeting, Miami Beach, Fla.  
**17-22** National Recreation and Park Association, Boston, Mass.

**27-30** National Rehabilitation Association, Annual Conference, Hollywood, Fla.

**27-30** Western Regional Conference of the American Association of Workers for the Blind, Tucson, Arizona.

### November

**19-23** American Speech and Hearing Association, Annual Convention, Houston.

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## PERSONNEL

### SITUATIONS AVAILABLE

**POSITION:** Assistant professor or Faculty Assistant in Special Education. Primary experience in the area of physically-multiply handicapped. Graduate and undergraduate instruction in teaching sensory-multiply handicapped, physically-multiply handicapped, and coordination of the physically handicapped undergraduate level.

**CONTACT:** Dr. Larry Hapeman, Department of Special Education, Northern Illinois University, Graham Hall 225, DeKalb, Illinois 60115. Northern Illinois University is an equal opportunity employer.

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**CONTACT:** Mr. Kenneth Hitzke, Staffing Specialist Staff Services Department Milwaukee Public Schools P.O. Drawer 10K Milwaukee, Wisconsin 53201



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# THE NEW **Outlook** FOR THE BLIND

APRIL  
1976  
Volume 70  
Number 4

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Medium

Fast

A

B

C

D

Factors in the Design of Braille Provision Systems



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# Factors in the Design of Braille Provision Systems

**BARRY E. HAMPSHIRE, M.SC.**

**T. G. WHISTON, PH.D.**

*Mr. Hampshire is with the Handikappinstitutet in Stockholm, Sweden, and Dr. Whiston is in the psychology department at Manchester University, England.*

■ During the last decade many technological advances have been made in braille production. We now have computer systems that are capable of transcribing prose text into nearly perfect contracted braille, and output devices now exist that can produce braille up to speeds of one page every four seconds. A good deal of research is currently in progress in Europe and America to increase the capacity of such devices still further.

Yet there is still a serious shortage of braille material. Clearly, this is not due to lack of equipment to produce the braille. In fact, at the present time braille *production* capacity is probably far in excess of *input* capacity. The problem lies more in developing an optimum organization for getting braille into a form where it can be produced efficiently *in the numbers that are required*, as defined by specific market needs.

**BRaille AND PRINTING MARKETS** In the past, developments in braille production have lacked appropriate design criteria, preferring a crude transference of printing technology to braille production. Such developments, as a consequence, have largely ignored the characteristics of the braille market, which are totally different from those of the inkprint book market. This is not to say, of course, that blind people's reading habits or interests are any different from those of the sighted population; on the contrary, the problem stems from the fact that the reading interests of the blind population are as diverse as those of the sighted (although in fact the true range of reading interests of the blind population is difficult to determine because of their relative lack of accessible reading material), but that the former group is only a small fraction of the size of the latter. With regard to demand for braille material, we are often talking about numbers on the order of twenty or thirty per edition, whereas no print book publisher would consider publishing an edition of less than a thousand, and probably a more typical minimum figure would be ten thousand. These numbers are so different that, as a general principle, it is necessary to regard the production of braille as completely different from inkprint production, although in a few instances the former can take advantage of developments in the latter (as in the use of compositor's tapes). In other words, braille production systems must be designed for the types and quantities of braille material demanded. Interests which previously were difficult to satisfy may then flower into wider demands for material.

In order to illuminate the specific production characteristics of the various braille production systems, some classification of these techniques is required. This includes both those currently available and those likely to be so in the near future.

**POSSIBLE CLASSIFICATION SCHEME** Braille production systems can be considered as having three stages: 1) A writing or input stage, 2) an intermediate stage, corresponding to some storage medium of coded braille, and 3) an output stage, where multiple copies of the actual braille text are produced. Using such a classification system we can represent current braille production techniques (and those of the near future) as in Figure 1.

## Manual Transcription Systems

Going from left to right along the input level (level I) we go from manual transcription to automatic transcription

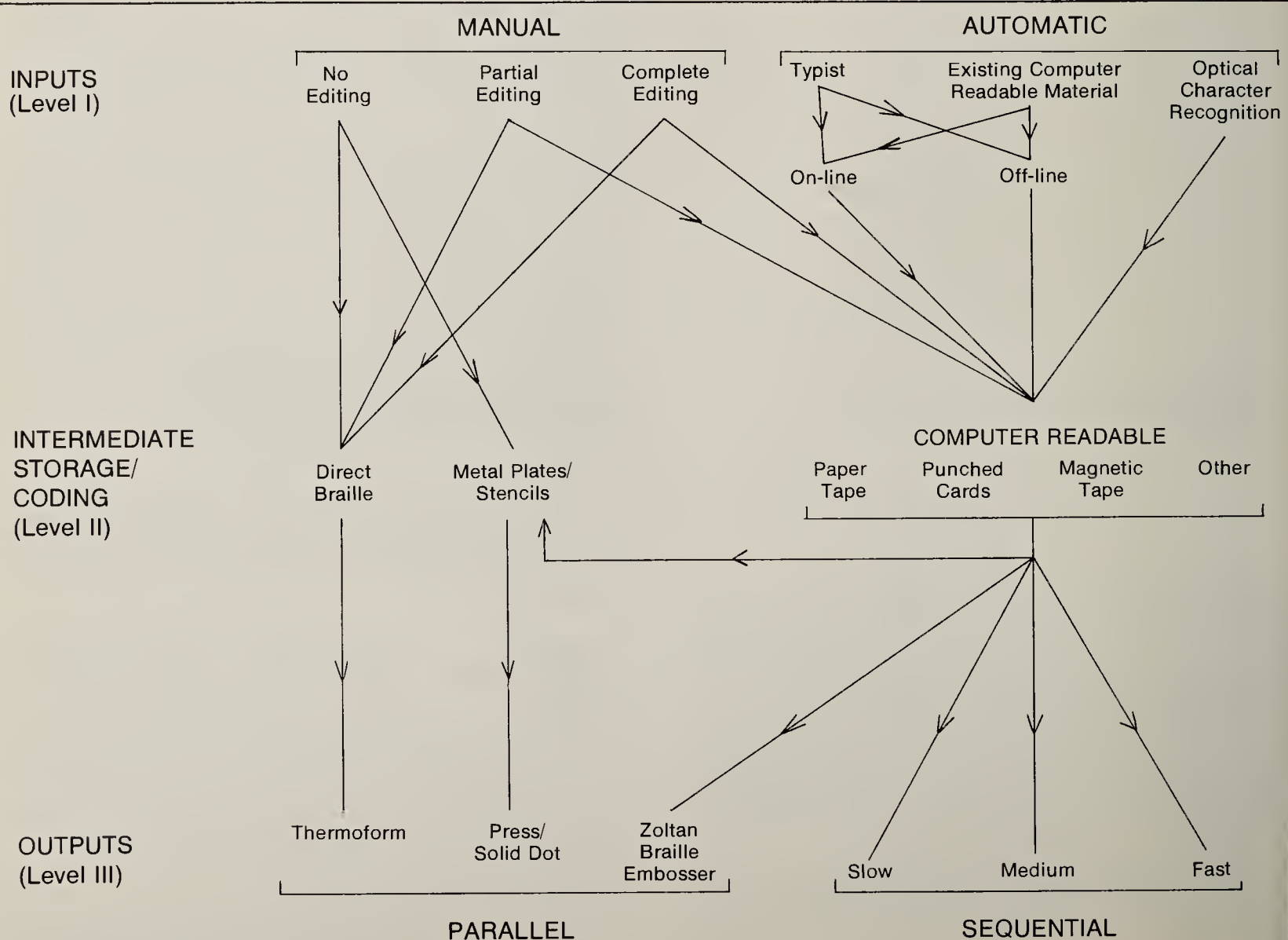
**Abstract:** *Although tremendous strides have been made recently in the development of braille production techniques and systems, a major problem still exists in adapting such systems to the demands of the braille market, which are considerably smaller than the demands of the printed-book market. A system of classification of production devices is presented, through which it is possible to determine quickly the optimum system to be employed in a particular production situation. An example is cited, based on the braille requirements of the Danish school system.*

**Note:** *This article is based on a lecture given at the Handikappinstitutet, Stockholm, on June 6, 1975, by B. E. Hampshire, while on a Winston Churchill Traveling Fellowship.*



# Braille Systems

Figure 1. A Classification of Braille Production Techniques (see text for detailed explanation)



using a computer. It is possible to make three subdivisions within the manual transcription category with respect to the extent of editing facilities available at the time of transcription. Thus, we have: 1) No editing facilities, as with a mechanical braille writer such as the downward-writing English Stainsby machine. 2) Partial editing facilities, where correction of what has been written is possible from the keyboard, but where it is either very difficult or impossible to see or feel what has been written. Therefore, only those errors which the keyboard operator is aware of making can be easily corrected. (Preliminary research indicates that such errors may form as much as 70 percent of the total errors made during keypunching.) 3) Complete editing facilities, where the text that is written is displayed (either visually or tactually) and can be checked, corrected if necessary, then transferred to the output medium.

**Automatic Transcription Systems**

Within the automatic transcription category we also have three main subdivisions. 1) Direct typing (by a typist who is not necessarily a brailist) from the inkprint into the computer or into some computer-readable medium. 2) Input from some already existing computer-readable form, such as compositor's tapes or a data bank, so that no keyboard input is specifically required for braille. With each of these techniques there are two variations: a) "off-line," where the transcription is done automatically by the computer with no external monitoring of the transcription, and b) "on-line," where the transcription process can be monitored by displaying the result of the transcription on a VDU (visual display unit) interfaced with the computer. This allows an operator to make any necessary corrections, and also to supplement the transcription by manual operation from the VDU keyboard for those cases where such corrections are beyond the capabilities of the transcription program (as in the arranging of tables or other complex formats). 3) Automatic reading of existing inkprint texts by optical character-recognition devices. Although this latter category of equipment has only fairly recently become available on the commercial market, such devices are already being considered for use in braille production (Grootenhuis, 1974).

**STORAGE MEDIA** At the next level (II), we have the intermediate or storage media, of which there are three main categories: 1) actual braille text on paper (although this is also braille output in its own right, when printed on only one side of the paper it can also be used as a master for multiple copying using the Thermoform technique); 2) metal plates, including the stencils used in the Solid Dot process; and 3) computer-readable media, of which there are a number of alternatives such as paper tape, punched cards, magnetic tape, and so on.

**Output Devices**

Finally, we have the output devices (level III) which are used for actual production of the braille copies. There are two basic types of output device: 1) the parallel device, which produces the desired number of a single or double page as a discrete sequence, and 2) the sequential device, which produces a complete copy of a book or article at a time. Within each of these basic categories there are further subdivisions relating to their capacity to produce multiple copies of braille. Thus, within the "parallel" category we may include: a) production of braille copies on plastic using

the Thermoform technique; b) pressing the braille from metal embossed plates, or, alternatively, using metal stencils for the Solid Dot process; and c) the Zoltan Braille Embosser, a high-speed interpoint embossing device under development in Stockholm, which works directly from a computer-readable medium. With the "sequential" category we have simply: a) "slow speed," e.g., the automated Perkins brailier; b) "medium speed," e.g., the MIT Braille-emboss; and c) "high speed," e.g. the Triformation LED-120 or the modified IBM 1403 line printer.

The above classification outlines the techniques of braille production fairly comprehensively. However, as was noted above, the critical aspect of efficient braille production is the relationship between the technique and the market which it is intended to serve, which will now be further discussed.

**PRODUCTION TECHNIQUES AND THE BRAILLE MARKET**

In order to facilitate this comparison between braille production techniques and the various characteristics of the braille market, a slight simplification of the earlier classification is useful. Instead of a three-stage classification, we can consider production in terms of the type of input and output. Although it perhaps oversimplifies some technical aspects of the various systems, this latter classification more clearly illustrates the relationship between the technique and its production characteristics. From it we can construct a matrix as shown in Figure 2.

The columns correspond to the inputs (level I) of the earlier classification, and the rows to the outputs (level III) plus the direct single copy of braille. From this matrix four basic types of braille production technique are clearly illustrated by the four areas (A, B, C, and D) produced by the central horizontal and vertical lines. These four types may be termed: manual input/parallel output (A); automatic input/parallel output (B); manual input/sequential output (C); and automatic input/sequential output (D). If we now consider each of these production types in turn, we can associate certain production characteristics with each, which relate to the type of braille, numbers of copies, degree of complexity, etc., to which they are best suited. Some of these characteristics are listed below:

**Manual/Parallel (A)**

1) Can be used for all types of formats and code systems, such as mathematics, scientific, foreign languages, etc. 2) In general, these systems are fairly inexpensive, although the Zoltan Braille Embosser is likely to be an exception. 3) With the exception of the Thermoform, interline and interpoint is possible. 4) With the possible exception of the Zoltan Braille Embosser, these outputs are only really efficient for a small range of numbers of copies. 5) A skilled brailist is required to produce the input. 6) If a mechanical keyboard is used, then writing time will be slow and often laborious.

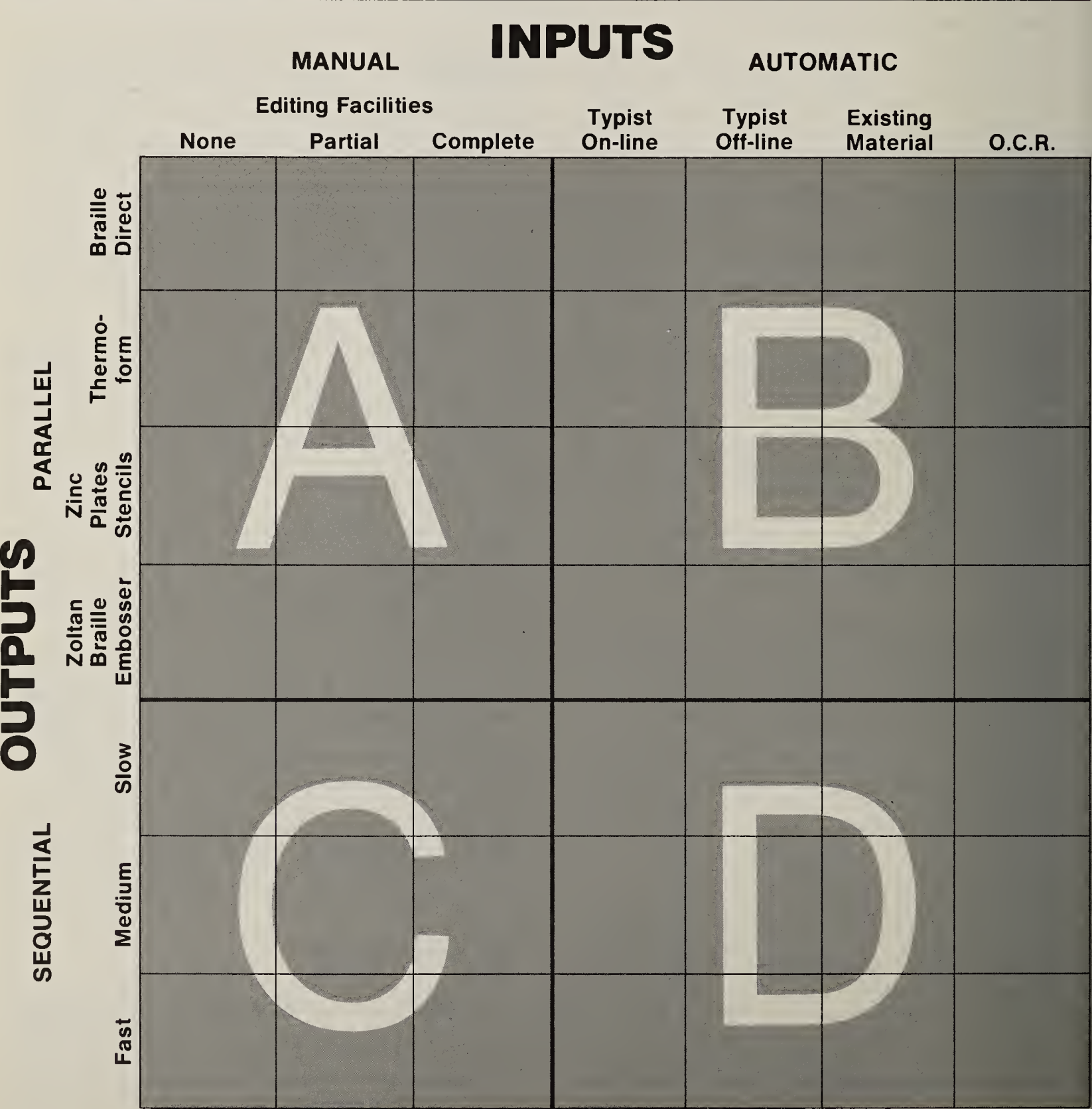
**Automatic/Parallel (B)**

1) A skilled brailist is not required. 2) In systems where the keyboard is not used for input, then input time will be fast. 3) Compact, relatively cheap, long-term storage medium easily available for future copies. 4) Inherent advantage of having a computer-based system so that future developments and expansion can be accommodated. 5) The



# Braille Systems

Figure 2. A Matrix Classification of Braille Production Techniques.



range of material that it will be possible to produce is limited by the software. 6) See Manual/Parallel characteristic (4).

### Manual/Sequential (C)

1) Outputs (especially the fast ones) have a larger *range* of numbers of copies. 2) These systems are relatively easily fitted into existing manual production systems. 3) See Manual/Parallel characteristic (1). 4) See Automatic/Parallel characteristic (3). 5) In general more costly than equivalent Manual/Parallel system. 6) See Manual/Parallel characteristic (5).

### Automatic/Sequential (D)

1) See Automatic/Parallel characteristics (1), (2), (3), (4), and (5). 2) See Manual/Sequential characteristic (1). 3) Likely to be expensive to very expensive.

These advantages and disadvantages of the various braille production techniques can be roughly summarized as in Figure 3.

This matrix classification, although it makes generalizations and exceptions must be noted, has the advantage that it can be used to provide insight into the capacity and range of existing braille provision facilities. Examination of the exact requirements and characteristics of the various sectors of the braille market in terms of the production characteristics listed above, shows how well present facilities cater to each particular sector, while also suggesting which areas of technical development are most in need of further attention.

**APPLICATION OF THE MATRIX** To illustrate how this matrix classification may be used, here is an estimate of Denmark's braille publications taken from a recent WCWB (ERC) survey (Pielasch, 1974.) The number of braille readers in the survey was 800. The percentages of braille publications produced were as follows: science, 20 percent; literature, 5 percent; schoolbooks, 35 percent; and periodicals, 40 percent. At their face value, these figures imply that science and literature publications should have priority in the production system, and, although schoolbooks from 35 percent of Denmark's braille publications, the fact that these are increasing suggests that this area is also an expanding one.

We can summarize the characteristics of the type of material required by schools as follows:

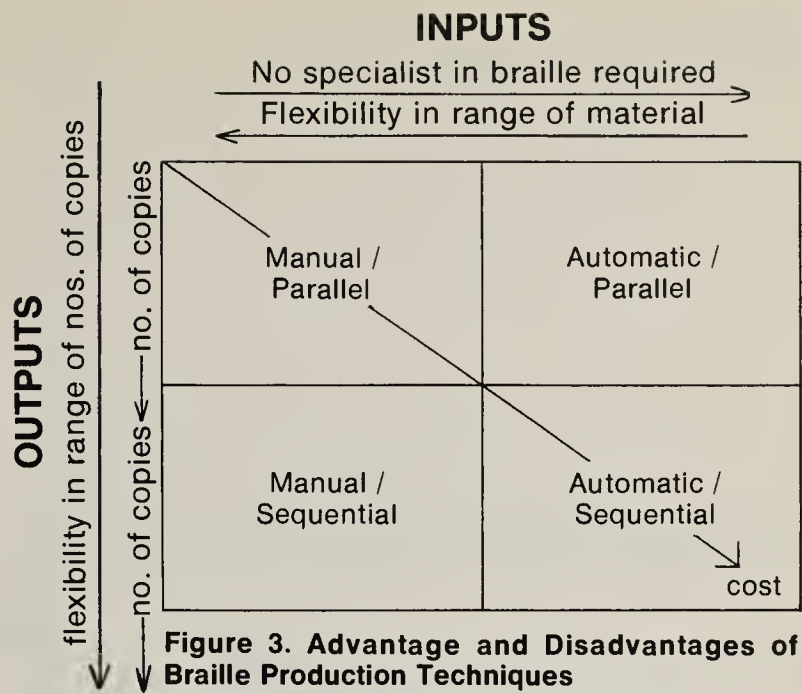
1) A large range of type of material is required—from full-length books to short notes, from texts requiring special formats and/or code systems to the simplest reading books.

2) Small numbers of copies will usually be required, especially in an integrated education context (which Denmark has) where neither uniformity nor continuity of use of textbooks can be relied upon.

3) A considerable proportion of material required by the children will be fairly short-length material specific to that school, e.g., notes, handouts, internal exam papers, and the like.

Science books also share some of these characteristics, especially in that they will usually be required in small numbers of copies and that they will often require complex formats and/or coding systems. Literature books are relatively easily produced, as they do not generally require special codes or formats and are therefore most amenable to automatic transcription.

Let us now consider the production "matrix" for Denmark, illustrated in Figure 4.



The matrix shows that, as in most countries, the bulk of production is done by manual/parallel methods; in fact, in Denmark this is largely by Perkins brailers, which allow Thermoform duplication where necessary. In addition, however, in Denmark there is an automated transcription system, with a high-speed sequential output (an IBM 1403 modified line printer), capable of producing 20 braille pages per minute. The matrix illustrates that for this very high-speed output there is only one input option—that of a typist, off-line. In fact, a commercial keypunch and computer service bureau is used for producing input, with only the actual braille output being carried out on the Printing House's premises (Jensen, 1975). This means that this automated system is severely limited (see automatic/sequential characteristic (1)) in the range of material it can deal with, thereby making it unavailable for much of the schools' requirements and for much of the production of scientific texts.

**RESULTS OF THE MATRIX** From the figures in Table 1, a more appropriate computer-based system would have been one that allowed some of their manual transcribers to transcribe onto a computer-readable medium, thereby allowing the fast sequential output to be used for a larger range of material. Furthermore, because of the very small numbers involved, a slower output might well have been adequate, and the money thus saved could have contributed towards the cost of appropriate transcription units.

It must be emphasized, however, that the above example merely illustrates how the matrix classification might be used to provide insight into appropriate specification for the design of braille provision. It does not necessarily reflect completely the real situation in Denmark, as the information provided by the WCWB survey does not give sufficient detail or range of information to be able to specify accurately the current market profile for braille in Denmark. Clearly, if braille provision is to improve significantly during the next few years, a much more detailed analysis and specification of the market for braille material must take top priority. This will not only involve considerations of numbers of braille books and braille readers, but will also have to entail evaluating braille in relation to other special materials and media available to the visually handicapped, and the existing resources of manpower, equip-



# Braille Systems

ment and money available in the particular country being considered. Not until these social aspects of the problem have been developed to match the level of technology currently available will the production of braille begin to eliminate the additional handicap afflicting numerous blind people: the lack of written material.

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Figure 4. An Example of how the Matrix Classification may be used to illustrate Braille Provision

		INPUTS						
		MANUAL			AUTOMATIC			
		Editing Facilities			Typist On-line	Typist Off-line	Existing Material	O.C.R.
		None	Partial	Complete				
OUTPUTS	PARALLEL		All Students & employed persons material					
	Braille Direct							
	Thermo- form		Some school material					
	Zinc Plates Stencils	Some school & casual reading material						
	Zoltan Braille Embossor							
	Slow							
SEQUENTIAL	Medium							
	Fast					Casual reading material		

# Rural Orientation and Mobility: Problems and Solutions

**CHARLES M. BAUSERMAN, M.ED.**

*Mr. Bauserman is an itinerant orientation and mobility instructor in the Roanoke District Office of the Virginia Commission for the Visually Handicapped.*

■ Since April of 1971 this writer has observed, evaluated, and trained orientation and mobility students using the long cane in rural Virginia. These rural travelers frequently experience problems quite different from problems encountered by long cane travelers in densely populated areas. Three prominent problems encountered by rural travelers are problems of orientation, application of long cane techniques to rural terrain, and limited availability of formal orientation and mobility instruction for prospective students.

Orientation is a major problem in rural areas because there are few man-made objects, and farm houses, out-buildings, etc., are often set far off the regularly traveled rural road. The rural mobility student is able, however, to use tactual, proprioceptive, auditory, olfactory, thermal, and cutaneous landmarks, points of information, and sensory cues to maintain orientation.

**RURAL LANDMARKS** Tactually, the student normally feels the difference in plane or texture between the rural road and road shoulder, the road shoulder and the property line, or the road and property line where no shoulder is present (Eisenberg, 1970). On nearly all rural terrain there are some differences in plane or texture which may be tactually followed although these guidelines may be extremely rough and irregular.

Proprioceptive landmarks such as hills and slopes are important in rural travel. A student may know for example that an objective may be found along the left guideline after crossing four steep hills. Also, a student may be able to remain oriented by traveling parallel to rural slopes, banks, or drop-offs.

Auditory clues such as traffic, if present, and animal, machinery, and numerous other farm sounds are helpful for maintaining orientation. The rustle of leaves on cornstalks distinctively identifies cornfields during summer months. Sounds of wind in tree foliage readily differentiate wooded areas from open areas. Areas of high grass and weeds along roads normally have more cricket and other insect sounds than plowed areas or areas with short grass. The hum of electrical wires and transformers can be useful. During a recent mobility lesson, a student stopped abruptly along a country road and stated that he was near a swampy area. The student had heard running water and the croaking of numerous frogs.

Olfactory landmarks and cues may be useful for orientation purposes. Certain crops and plants such as freshly cut hay or honeysuckle have particular odors. The odor of newly plowed earth is easy to detect. Additionally, few rural travelers miss the pungent odors surrounding cattle, hog, poultry, and other animal feeding areas.

## Solar Clues

The sun is the main thermal landmark used in rural travel. In early morning and late afternoon the sun's position is most useful in maintaining knowledge of cardinal compass directions. During the middle of the day, however, use of the sun for orientation can be confusing. On one occasion this writer was traveling under blindfold during an agency training exercise at approximately 11:15 A. M. In attempting to use the midday sun for orientation in order to travel east, the writer inadvertently ended up traveling due west. Shade from trees or tall objects can also be useful as a thermal cue.

**Abstract:** Rural orientation and mobility presents long cane travelers with special problems of orientation and application of long cane techniques to rough rural terrain. Solutions to orientation problems and modifications of basic long cane techniques for rural travel are described in this article. Rural blind Virginians with limited availability of formal orientation and mobility instruction frequently develop innovative methods, devices, and aids for independent travel prior to formal orientation and mobility instruction.



“... broomhandles, handles from garden and farm tools, golf clubs, billiard cue sticks, a clothes line, a milk bucket, electrical auditory devices, a powerful flashlight, bare feet ... have been or are being used for orientation and/or mobility purposes.”

Wind is the main cutaneous cue used for rural orientation. Wind currents may be an aid to orientation, but the rural traveler should remember that wind directions are quite changeable.

The two main long cane techniques used in rural travel are the touch technique and the touch and drag. Rough and irregular rural guidelines do sometimes necessitate slight modifications of the touch technique used in trailing the guideline with the long cane. Shoreline and shelining are mobility terms used by many instructors outside of California to mean guideline and trailing the guideline with the long cane respectively. The touch and drag is employed in rural travel basically in the same manner as in densely populated residential and business areas.

**MODIFYING THE TOUCH TECHNIQUE** Where there is an extremely rough and uneven guideline, the extent of the cane's arc nearest the guideline may need to be slightly wider than the arc used in the normal touch technique. Use of a slightly wider arc toward the rough, uneven guideline not only allows the traveler to remain parallel with the guideline, but also allows the traveler to walk on a relatively smooth surface. The wide arc toward the rough guideline, helps the traveler move rapidly with the touch technique rather than using the touch and drag exclusively which naturally requires a slower rate of speed. Another modification of the touch technique is the “grass popping” method which probably originated in Arkansas. Using the “grass popping” modification, the traveler touches thick, grassy guidelines slightly more forcefully than normally, causing the cane tip to pop out of the grass rather than to stick to thick foliage.

### Touch and Drag

The touch and drag is the main long cane technique to be emphasized in teaching rural travel. The touch and drag is most useful in trailing uneven guidelines between rural roads and road shoulders, guidelines between road shoulders and ditches and culverts, and in navigating the numerous gradual curves along rural roads which seem to never have straight, even guidelines or a definite direction. Frequently, the rural traveler has difficulty knowing he has navigated a curve because the curve is so gradual and has no abrupt 90 degree turn. Often rural curved guidelines are almost impossible to trail using the touch technique. Therefore, the touch and drag must be used. Numerous reinforcement lessons are necessary in teaching rural travel so that the student habitually and confidently travels parallel to rural guidelines through selective use of the touch technique and the touch and drag technique. The touch and drag is quite useful in making the “inside” crossing so

necessary for successful navigation of rural intersections. The procedure for an “inside” crossings at rural intersections is basically the same procedure used to cross perpendicular intersecting streets in residential curb travel. However, the rural traveler must travel much further away from the parallel road than does the residential curb traveler in order to ascertain a definite straight guideline for direction. Man-made guides for crossing perpendicular rural roads are usually indefinite or non-existent. The rural traveler should remember that it is much safer to travel too far “inside” away from the parallel road before crossing than not far enough.

**DEVELOPING AIDS FOR INDEPENDENT TRAVEL** Limited availability of formal orientation and mobility instruction severely limits safe and independent travel of rural dwellers. However, blind residents of rural areas often develop innovative and creative methods, devices, and aids for independent travel prior to formal orientation and mobility instruction. In rural Virginia numerous short wooden or metal canes, broomhandles, handles from garden and farm tools, golf clubs, billiard cue sticks, a clothes line, a milk bucket, electrical auditory devices, a powerful flashlight, bare feet, and a crooked handle long cane used in an inverted position have been or are being used for orientation and/or mobility purposes.

Wooden and metal canes, both straight and with crooked handles, are often used as mobility aids. Length, weight, strength, and conductivity of these canes vary greatly. Most of the canes are rather heavy, short, orthopedic type devices which are used to feel only 12 to 18 inches ahead of the body and to trail guidelines without using an arc to cover the width of the body. Sometimes such canes are fitted with rubber or plastic non-skid tips which may add to the non-conductivity of the devices. Additionally, many adventitiously blinded rural residents are automatically given short, white, wooden canes by well-meaning relatives, friends, or service organizations. These short, white canes do serve as symbols of blindness for safety purposes, but they are usually not very functional either for orthopedic purposes or for orientation and mobility.

**MAKESHIFT MOBILITY AIDS** Broomhandles are probably the most popular rural mobility aids. One rural student had developed a method of trailing the guideline of a rutted lane with a broomhandle approximately 200 yards to her mailbox. However, the student was apprehensive concerning snakes during warm weather and quail, rabbit, and deer hunters with dogs during various hunting seasons. Therefore, she fashioned a leash from hay baling twine for her pet dog and held the dog's leash with her left hand while trailing the guideline with a broomhandle in her right hand. She had little fear of hunters' dogs or snakes when using her pet dog for protection. This innovative student, using both broomhandle and pet dog, had traveled the round trip route from her home to her mailbox almost daily for several months prior to receiving formal orientation and mobility instruction. Another student using a broomhandle was traveling approximately 60 yards round trip to her mailbox prior to formal mobility instruction.

Handles from garden and farm tools are frequently used as mobility aids. Hoe and rake handles are most commonly used as travel aids. A golf club minus the clubhead also makes a rather functional travel aid. Such a device is quite similar to current prescription long canes.



In two instances this writer has worked with students who have attempted independent travel using billiard cue sticks. The cue stick's balance is good since most of the weight is in the handle. A cue stick tip usually has a plastic ferrule which affords both protection and strength for the tip and slides easily over most surfaces.

In one rural area a rope clothes line was stretch approximately 70 feet from the back porch of a house to the doorframe of an outdoor toilet. The blind traveler simply trailed the rope tactually with the hand.

**DESIGNING ARTIFICIAL LANDMARKS** Rural travelers often experience the problem of not having a distinct landmark or point of information for use as a guide in crossing roads in order to locate driveways, mailboxes, and other desired objectives. One student sometimes carries a milk bucket out of her driveway and places it directly across the road from the driveway along the guideline. When returning home, the student trails the guideline until her cane contacts the milk bucket. She then picks up the bucket, squares up with the guideline, and proceeds across the road into her driveway. Another student has relatives who placed a large flat rock along the road guideline opposite several garbage cans near her home. Using the long cane to trail the road guideline, she travels to the flat rock, crosses to the garbage cans, and independently empties her garbage.

Numerous electrical auditory devices have been successfully used for orientation by rural travelers. In one case a student would turn on an electric bell on the outside door frame when she traveled outside of her home. Sometimes students will leave radios and televisions playing so that the sound may be used for purposes of localization.

**Improvising Daylight**

One low vision student with a diagnosis of retinitis pigmentosa was able to independently travel to a second shift job during daylight hours. However, the student experienced night blindness and could not safely travel home when his shift ended after darkness. This student found that a powerful flashlight provided enough illumination for

independent travel on the familiar route from his job to his home.

One young low vision student traveled approximately 300 yards round trip from her home to a country store along a two lane highway, tactually following the highway guideline with her bare feet. The student covered the route using her bare feet to follow the highway guideline without any other travel aid several times a week during warm weather.

**INVERTING PRESCRIPTION CANE** In another instance a rural student was contacted by an itinerant orientation and mobility instructor, and formal instruction was begun. The itinerant mobility instructor began training and issued a crooked handle prescription cane. Because of a large mobility caseload and geographical distance, the instructor could not contact the student for several weeks. Upon recontacting the student, the instructor found that the student was using the long cane in an inverted position in the plowed and furrowed garden area near the student's home! The student had gotten tired of the long cane's nylon tip sticking in plowed ground. He inverted the cane with the open end of the crook upward so that the crook would slide over furrows and loose earth.

**SUMMARY** Initially most rural orientation and mobility students want to travel independently to their mailboxes, nearby houses of friends and relatives, and country stores within walking distance. Students also frequently desire orientation and mobility training to their local churches and post offices. Rural students often express apprehension concerning orientation, snakes, hunters with dogs, and heavy truck travel on narrow rural roads. Innovative and creative blind rural residents quite often develop aids and devices for orientation and mobility prior to receiving formal mobility training.

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**Is Career Education a "Hollow Reform?"**

Career education, the foremost trend in current American education, came under attack in the January 1976 issue of the *Harvard Educational Review*. Two scholars, Dr. W. Norton Grubb and Dr. Marvin Lazerson, in their article, "Rally 'Round the Workplace: Continuities and Fallacies in Career Education," labelled career education a "hollow, if not invidious reform."

"Despite its assertions to the contrary," the authors maintain, "[career education] is primarily a renewal and expansion of vocational education, a movement that has previously proven itself ineffective in reducing the gap between rich

and poor, in enhancing school learning, in solving social and economic problems, and in improving the status of physical work."

Since 1971, Office of Education expenditures for career education have increased from \$9 million to \$61 million. Almost one-third of the country's 17,000 school districts now have formal career education programs. The basic assumption behind career education is that it provides a bridge between the classroom and the workplace, allowing students to gain not only practical skills, but also positive attitudes toward work and exposure to a variety of career possibilities.

The authors refute this theory, saying that, "in fact, most work is boring. Its unvaried routine, the simplicity of most tasks, and the constant supervision characteristic of hierarchical settings all deny workers a sense of competence and feeling of responsibility."



# Sensory Awareness Exercises for the Visually Handicapped

**MARK P. BEHAR**

**DENISE R. ZUCKER**

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**Abstract:** *A set of six sensory awareness exercises lasting 30-90 minutes are described that help visually handicapped individuals appreciate and become more aware of their other senses, thus building confidence and enabling them to better deal with their environment. Clients were first taught a muscle relaxation technique to make them more aware of their whole bodies before concentrating on different sensory modalities. Exercises involving touch, taste, smell, and hearing were conducted in a dark room so as to occlude whatever visual capabilities the clients had and to help maintain concentration on the exercise. Various objects that required the use of a particular sense were distributed to the participants who then described and identified them. The purpose of the final exercise was to integrate past activities in a sensory treasure hunt, whereby blindfolded participants experienced tactile, olfactory, gustatory, and auditory clues then decided as a group where to find the next clue. Client feedback and instructors' subjective impressions seemed to confirm the usefulness of the program.*

■ The Jewish Community Center of New Orleans administers Project Independence, an evaluation and adjustment program for visually handicapped adults, in cooperation with the Blind Services Program in the Division of Family Services, Louisiana Health and Human Resources Administration. The program has a threefold purpose: to aid individuals in their emotional adjustment to blindness; to teach basic living skills so that each person may function independently; and to evaluate skills as a basis for further job training and placement. Three ten-week sessions are held each year with an average of 12 students per session. Areas of instruction include orientation and mobility training, arts and crafts, homemaking, communications, physical education, music, and most recently, sensory awareness training. A more thorough description of the program can be found in Cohen and Crain (1973).

**NEED FOR THE TRAINING PROGRAM** A staff evaluation of the first ten-week session established that many of the clients could benefit from extensive training in sensory awareness. For example, some individuals were unable to identify or properly use wind, sunlight, and traffic sounds as cues for maintaining proper orientation during mobility lessons. From extensive past experience with vision as a dominant sense, it was believed that the visually handicapped could benefit from training to recognize the utility of their other senses in maintaining contact with their environment.

Familiarity with a sensory awareness approach to nature study at a children's camp (Van Matre, 1970) helped in the creation of a series of meaningful sensory training exercises lasting no more than 90 minutes. These exercises were designed to help the visually handicapped clients become more aware of their other senses, enabling them to interact confidently with objects in their environment and to appreciate and better identify them. The following is a description of and commentary on this program.

**PARAMETERS OF THE TRAINING PROGRAM** All of the sensory classes were conducted in darkness (except the last, which will be discussed later) in order to reduce the visual advantage of some of the partially sighted clients. In addition, all instructors who served as models for the desired behavior participated in the exercises with clients. At the conclusion of each exercise and at other times throughout the program, clients were reminded to use all their senses for facilitating orientation and mobility, homemaking, arts and crafts, and communication skills, and were praised when they did so. A number of texts were used for background information for the short discussions that followed some of the exercises, (e.g., Alpern, Lawrence, & Wolsk, 1967; Corso, 1967; Keeton, 1972; Milner, 1970; and Mueller, 1965).

## Muscle Relaxation

The initial sensory class was devoted to muscle relaxation exercises (Jacobson, 1938; Wolpe, 1961; Wolpe & Lazarus, 1966) primarily to allow clients to get in touch with their bodies and to experience the whole physical self as a working entity before concentrating on particular sensory modalities. Clients were given the choice of either sitting in a chair or lying on their backs on gym mats; it was thought that some individuals might feel unguarded or vulnerable in a reclining position and the increased anxiety could impede their awareness and concentration on the



relaxation exercise. Clients were first instructed to make themselves as comfortable as possible, and then to tense and relax alternately certain muscle groupings while concentrating on the resulting tense and pleasant feelings, eventually covering all important muscle groupings. This procedure, taking about 30 minutes, was followed by a short discussion on the usefulness and practicality of this technique, along with comments, complaints, and questions. At the end of the relaxation exercise one client was dozing. Most of the other clients related positive feelings after the initial shock of the unique procedure.

### Touch

The second exercise concentrated on tactually describing and identifying unknown objects in a game-like fashion. Since the tactile mode is of major importance in recently blinded individuals, special emphasis was placed upon this exercise. Development of a fine tactile discrimination was partially achieved by giving each client an unidentified object and instructing him to fully but silently explore that object with his hands. Each person was then asked to describe the object's different tactile qualities—temperature, texture, hardness, etc.—to help the others correctly identify the object. It was necessary to avoid objects that might stimulate other sense modalities. The objects included a vinyl record disc, a pair of pliers or tube of lipstick (given to men and women respectively), a potato, a light bulb, a metal funnel, a facial tissue, and a brick. It was important for the exercise leader to provoke descriptions to aid in the identification of objects and to keep the game moving to maintain interest. One of the shyer students, who spoke only in abbreviated, monosyllabic whispers, had great difficulty in being heard and understood; the other individuals provided prompting, support, and social praise when she described her object to the others.

**TASTE** The chemical senses proved to be the most difficult to describe, probably because of the clients' lack of training in distinguishing fine differences in taste and smell, as opposed to vision and hearing. Gustation is usually described with some combination of the four primary tastes (sweet, sour, salt, bitter), whereas olfaction, which is much more sensitive to airborne chemical stimuli (Keeton, 1972), depends on the system of classification used. Mueller (1965), Amoore (1970), and Amoore, Johnson, and Rubin (1964) have differed on the extent of describing and naming the "basic" odors. Moreover, some of the terms (viz., "camphoraceous," "ethereal," "pungent," "resinous") are difficult to identify and put into lay terminology. Since systems of taste and smell are intimately related and are often difficult to separate (Keeton, 1972), the identification process is often complicated.

### Taste

In the taste discrimination exercise, a small sample of food was placed on a plate in front of each client, so that unpalatable tastes could be ejected without embarrassment. Bland and mild-tasting items (e.g., bread, banana, celery, alfalfa sprouts) preceded the stronger stimuli (e.g., garlic, cheese, peanut butter) only to reduce the possibility of the aftertaste masking the next presentation. Clients were again prompted to describe each item by consistency (gritty, crunchy, sticky, smooth, etc.), temperature (cool, room temperature, warm), and taste (sweet, sour, salt, bitter, or combinations of these). Sweet items were avoided for the

benefit of diabetic clients. Most individuals could identify the food, although describing the taste adequately with the appropriate adjectives was not easy. This exercise was followed by a short discourse on the effects that saliva, cigarette smoke, aging, etc., may have on the ability to discriminate tastes.

### Smell

Objects for the olfactory exercise were "reality-oriented," consisting of outdoor objects (e.g., street tar, leaves, pine needles, flowers) and household items (e.g., foods, medicines, cleaning agents, personal items). As in the previous exercise, they were presented one at a time to each client, who was not allowed to touch the item. Because of the difficulty in describing these objects, the exercise leader facilitated responses by directing questions to individual clients ("Joseph, does this object smell earthy or metallic?"). Untrained persons may have been confused in describing a smell as "ethereal," "resinous," or "pungent," so more common (but perhaps less exact) adjectives were used: sweet, sour, sharp, biting, mild, spicy, etc. It was readily apparent from the choice of words used in describing an odor that differentiating smell from taste was a formidable task. The mechanism of smell was briefly described following the exercise, with emphasis on how and why different causes (smoking, nasal congestion, water irritation from swimming, exposure to a powerful smell) can produce partial anosmia. Some clients related how some aromas evoked past experiences.

**DEMONSTRATION** The class was then told that a bottle of liquid peppermint concentrate, a flavoring with an extremely powerful smell that candy makers use, was going to be opened. In reality, however, no such substance was present. They were asked to give some indication as soon as the smell was detected. Some clients actually claimed to have detected the nonexistent odor, whereas others admitted only *saying* they smelled the substance. It was then discussed how this demonstrated that a person's behavior could be affected by expectations and the influence of others.

### Hearing

The fifth sensory class required clients to listen to various tape-recorded sounds and to describe rather than identify them, as indoor-outdoor, people-animal-mechanical, soft-raspy-loud, musical, etc. Sounds were presented in categories, so that similarities could be recognized; for instance, various animal sounds (birds, crickets, monkeys, jungle sounds) were presented together, as were mechanical sounds (jet plane, train, automobile). Sound effects records were obtained from the public library for unusual, hard-to-find stimuli. Emphasis was placed on sounds thought to be frequently encountered during orientation and mobility exercises; outdoor noises, including traffic signal clicks and various street and sidewalk sounds, were therefore included. It was sometimes very difficult for clients to recognize the sounds out of context, and some sounds therefore remained unidentified.

**SENSORY TREASURE HUNT** The last exercise was a sensory treasure hunt designed to make the clients integrate all nonvisual modalities for identifying clues and decide as a group where that clue required everyone to go to discover the next hunt clue. Because this exercise re-



**“It was readily apparent by the choice of words used in describing an odor that differentiating smell from taste was a formidable task.”**

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quired a great deal of mobility outside a darkened room, clients were fitted with blindfolds so as to reduce visual advantages. Instructors served as guides and helped facilitate discussion as to where each clue directed the group to go. Everyone was required to experience the clue before discussing where to go next. In some cases, more than one clue was presented. Thus, the sound of a flushing toilet directed participants to go to their respective washrooms for the next clue; touching ice cubes together with smelling and tasting peanut butter on celery sticks directed everyone to the kitchen. The final clue directed participants to a game room where a party was held, with music, refreshments, billiards, and other activities. This sensory game not only forced students to use more than one sense modality at a time, but also provided “reality” clues in the environment.

**CONCLUSIONS** Sensory exercises began with experiencing of the whole body with muscle relaxation, and ended by integrating the senses into a working unit to demonstrate everyone’s newly discovered abilities. Although these sensory awareness classes were geared to a ten-week program, ideally more time could be devoted to developing further the sensitivity of each sensory modality and integrating these senses so that each person becomes a more confident and independent individual. The participation and support of other instructors not only served for modeling the desired responses, but also facilitated the integration of the newly sensitized sense into their own classes. For example, communications class concentrated on sound identifications and tactile discriminations of braille characters and unusually shaped objects. In addition, knowing the nature of each lesson enabled instructors to more effectively reinforce the clients’ use of their newly acquired awarenesses. With the assistance of a friend or relative, clients could increase their own sensitivity to sensory clues by taking home specially prepared cassette tapes of each sensory lesson.

A more thorough method of evaluation of the program’s effects should be considered. Behavioral indices of mood, self-concept, independence, and confidence in a pre- and post-test format could quantitatively determine the usefulness of the exercises. These measures would enhance the validity of subjective evaluations and comments from clients and staff. Positive feedback from clients was noted at the conclusion of each exercise and was also inferred from excited expectation of the next class. Other instructors’ observations of the clients’ acquisition of new skills in their respective classes and their improved mobility and awareness outdoors seemed to confirm the usefulness of the program.

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## Is Graduate Education An Exercise in Futility?

It is no longer an uncommon event to find a Ph.D. working on a factory assembly line, selling shoes, or filling a clerical job. According to a recently published report of the National Board on Graduate Education it may become even more common in the future because of the acute shortage of college-teaching positions. “The serious policy issue for new Ph.D.’s,” the report claims, “is not unemployment . . . but underemployment.”

The report, “Outlook and Opportunities for Graduate Education,” recommends a shift in emphasis in graduate education with less stress on the preparation of research scholars and more on the advanced training of men and women who are already employed. The report encourages state governments to diversify the programs of graduate institutions, thus allowing universities to tailor their curricula to the needs of their constituencies. According to the report the real mission of graduate institutions should be “serving a local clientele with part-time, applied master’s and professional doctoral programs.”

The report is available for \$1.25 per copy from the Printing and Publications Office, National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

# Establishing and Maintaining a Therapeutic Environment in a Residential Rehabilitation Center for the Blind

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**Abstract:** *The functions of a residential rehabilitation center for the blind are outlined in this article, including its role as a therapeutic treatment center. The establishment and maintenance of a therapeutic environment is crucial to the efforts of the center; the heart of the dynamics of the therapeutic approach is the interaction between each staff member and student. Thus, careful staff recruitment, plus continuous, intensive staff training is crucial in developing a staff that is unified and consistent in approach, able to manage the rehabilitation process consciously, adapting it to the needs of each student.*

■ The residential center has grown to assume an important place in the rehabilitation of blind persons. Experience has shown that maximum benefits of rehabilitation for the blind person can be gained from participation in an intensive residential program. The residential center has as its goal the adjustment of the person to a new, at first intolerable course of life, one that is quite different from the individual's life as a fully-sighted person.

We are talking here of the newly-blinded adult, the person who has grown and developed with full sight and, through disease, trauma, or other ophthalmic affection, has lost sufficient vision to render most aspects of daily life difficult, if not impossible, to perform. The residential rehabilitation center for blind persons is an effective tool in achieving personal adjustment to visual loss in a more reasoned, orderly, and efficient manner than scattered, well-meaning, but sometimes disorganized rehabilitation efforts in the individual's home and community.

In the residential center, the individual is exposed to a broad spectrum of skill courses designed to alleviate the various losses resulting from severe visual impairment (Carroll, 1961). These courses help restore adequate functioning and replace old ways of doing things with new methods. The latest technical and engineering advances in the field of blindness are integrated into these courses, so the person may benefit from these fields. The psychological and emotional response of the person to his visual loss is approached in a direct manner through individual counseling sessions, group classes, and whatever other modes may be deemed appropriate.

Today the staff in most, if not all residential centers, is highly skilled and, for the greater part, professionally trained. Many have the advanced academic study in specific areas of rehabilitation and work with blind and other handicapped people. Usually all new staff members receive an intensive orientation into all aspects of the center, its policies and operation, and are then involved in a continual process of staff training and development. Generally the staff of a residential center is tuned in to the specific problems of rehabilitating people in a center; their role and function in the center will be discussed at length later in this paper.

**ADJUSTMENT TO VISUAL LOSS** The residential center deals strictly with the person's adjustment to his visual loss; in this sense it is a very "selfish" institution. Visual loss is a very personal, painful experience for the individual, one that he is living through every moment of his day. There is no escape from it, no relief, no lessening of the anxiety and frustration. In this situation the individual comes to feel alone in his suffering and, in a very real way, can become isolated from people and things, including his family and friends. This then is the "selfish" aspect of rehabilitation—the individual is "isolated" from the usual aspects of daily life, including his family, and made to come to grips with his visual loss, to face it, openly, bravely, realistically, and find ways of dealing with it that will lead to eventual adjustment to the reality of the situation. Thus, the following is probably one satisfactory definition of adjustment: learning to accept the reality of a condition and then finding suitable ways to live with that condition.

Certainly all aspects of the person's life are examined in the center. The social worker will prepare a picture of the person's past life—pre-rehabilitation, pre-blindness—in



**“The establishment and maintenance of a therapeutic environment must permeate all levels of staff, from the administrator, to professional staff, to ancillary and supportive personnel, as well as to all volunteers.”**

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great detail, searching always for clues that may enlighten the person's efforts to cope, thus leading to more effective counseling. The family is brought into the picture through organized individual or group family programs, educational efforts aimed at showing the families what the person has accomplished in rehabilitation, where the family fits into the rehabilitation process, and what to expect when the family member arrives home. Most residential centers have some kind of vocational counseling, perhaps by a counseling psychologist or vocational rehabilitation specialist, to test, evaluate, and prepare the person for vocational endeavors after rehabilitation, if this is indicated.

Important as all of these efforts are, the crucial aspect of rehabilitation is the individual blind person and his own personal adjustment. Again, this is the selfish part of rehabilitation—the process takes place in relative isolation as the person develops the inner strength to create a new life as a blind person. This new life is complete and sufficient to the person himself, is understood and experienced by him; if he is satisfied with it and with himself, nothing else really matters. And if he is, rehabilitation has been a success. He is ready to move on to the initial phases of his new life, secure in himself, and his abilities as a blind person.

**THERAPEUTIC TREATMENT CENTER** The residential center becomes then a center designed for the treatment of a particular disability; it becomes a therapeutic treatment center. Every phase of its program and programming is developed with this idea in mind: to offer an adequate treatment for a serious disability. We can readily talk of the blind person as disabled simply by the fact of his visual loss, even if no other physical complications are present. This disability, blindness, calls for the application of a specific remedy, rehabilitation, to effect its cure, just as the physician and nurse apply a remedy to cure or alleviate a disease or sickness. Unfortunately, there is no cure for visual loss, only the alleviation process; the ultimate cure would be full restoration of sight and, in most cases, that would be more of a miracle than anything else.

### **Improving Overall Health**

Thus, the therapeutic treatment center for blind people strives to alleviate the effects of the visual loss, to lessen their impact, to improve the overall health of the person by applying specialized remedies as treatments. Every effort is designed to establish an adequate therapeutic environment that will have the most benefit for the most people. In actual practice, this treatment can be greatly concerned with the physical condition of the person. Medical management in rehabilitation can be extremely crucial to a

person's ultimate progress. Adequate medical consultation in the center is essential.

A therapeutic environment in a residential rehabilitation center involves teaching an individual certain skills as treatments, by a team of therapists aware at all times of the individual's reaction to the treatment, and constantly ready to adapt the emphasis of a treatment to the person's ability to cope with it at that time. The purpose of the therapeutic environment is to achieve maximum functioning and adequacy for the individual in a reasonably short period of time by alleviating the effects of his visual loss, and by helping to rebuild a healthy self-image of himself as a blind person.

**MAINTAINING THERAPEUTIC ENVIRONMENT** In order to allow each blind person to reach the highest level of adjustment to his blindness, a residential rehabilitation center must consciously build in the mechanisms that will allow its staff to function as a total therapeutic process of rehabilitation at all times and to consciously practice it in every contact with the blind person. Establishing and maintaining such a therapeutic environment is no easy task; not only does it require a strong commitment by the staff, but once consciously built in, it must be maintained by constant staff sensitivity, staff training, as well as other planned methods.

To best assure the adjustment of the individual blind person, the therapeutic environment must be in evidence from the very beginning to the very end of the person's stay at the center. Also, it must be present in every aspect, class, encounter, relationship, and situation that the person meets. Without this total ongoing therapeutic environment, there is the danger that the person may lose the feedback from staff and fellow students that is so vital to his growth. The atmosphere must be charged with the dynamic relationships that grow between individual students, and between individual students and staff members, as well as between the student group and the staff group. It is these dynamic relationships that generate the strength to help the therapeutic environment grow (Blank, 1971). Without them, the rehabilitation process becomes a stale learning of techniques and no real change is made in the person.

**ISOLATION AND RECUPERATION** As mentioned above, the rehabilitation center performs its task in relative isolation. Its treatment program is comparable to the treatment given an ill patient in a hospital who, once he has passed through the acute phase of his illness, begins a process of recuperation that is individual, intensive, demanding, and very self-centered. If the patient is recuperating from a serious enough illness, his efforts may involve carving out a new life for himself, with new ways of doing things and a new outlook on his entire life. This process for the patient may be a very real personal isolation, unless his illness has brought him together with other patients involved in the same illness and recuperation. The patient becomes totally involved in what is happening to him, as his entire body and mind concentrates on the birth of his new life. This phase of his recuperation is turned inwards, excluding family, friends, and most other outside influences. This is a difficult, personal, frequently painful time for the person, and requires an environment that is warm, supportive, treatment-oriented, and loving.

For the blind person in the residential center, the experience is much the same. However, he benefits from his



direct involvement with other blind persons, with a staff that is therapeutically oriented, and a program that is designed to achieve maximum adjustment to visual loss.

### **The Significance of the Staff**

In establishing a therapeutic environment in a residential center, the single most important factor involved is the staff that works with the blind students. The physical plant and working equipment are certainly important and should receive some mention.

An effort should be made to have surroundings that are clean and relatively comfortable, with adequate teaching space, a group meeting area, and some recreational facilities. The various pieces of equipment used in instructional areas should be sufficient in number and quality to allow maximum learning of skills. As far as possible, the latest pieces of technological hardware—Optacons, Stereotoners, closed-circuit TV systems, the several mobility guidance devices, etc.—will be available, at least for demonstration and, when indicated and possible, for intensive instruction. However, both surroundings and equipment need only be sufficient for the job at hand and need not be stressed at the expense of strong staffing. Indeed, experience has shown that adequate rehabilitation can be accomplished even when the physical plant and equipment is merely satisfactory.

**HIRING AND TRAINING PERSONNEL** The hiring and training of the rehabilitation staff becomes a crucial part of the process. The requirements of the National Accreditation Council (NAC) specify the number and kind of rehabilitation staff for a center. This has certainly brought a solid professionalism to hiring and staffing practices for centers and will help assure continued high level quality personnel in the future. Beyond what is set down in the NAC requirements for a center, the administrator, director, or personnel chief, must use great skill in screening, evaluating and examining the qualifications of applicants. During the personal interview he must look for those qualities in a person that will make him a solid functioning member of the therapeutic team. This calls for a thorough knowledge of the rehabilitation process and its ultimate goals; it also places great responsibility on the person who makes the final choice among applicants.

An interesting observation about residential rehabilitation centers is their rather low staff turn-over rate; this is based on personal observation and there is no hard data at hand to support the statement. At any rate, the staff of a center grows to form a solid bond among its members, with a unified, organized approach to its task. The members of this staff will usually be the kinds of people who are sensitive to the feelings of other people and can respond to these feelings openly and with love. As the blind person gradually begins to express his needs to the staff, they must try to fulfill those needs as adequately and realistically as possible, providing necessary support and gradually withdrawing it as the student's abilities increase.

This ability to respond to the student's needs is an extremely important part of rehabilitation, as difficult and unrealistic as the student's demands may seem to be. This staff response to a student's needs can be terribly demanding of the staff, calling for unflagging patience, determination, and a constant awareness of how the student's needs and demands relate to his visual loss and the effect it is having on his personality organization.

### **Staff Sensitivity**

The establishment and maintenance of a therapeutic environment must permeate all levels of staff, from the administrator to professional staff, to ancillary and supportive personnel, as well as to all volunteers. Everyone must know exactly what he is doing and be very aware of his effect on the blind students. To maintain and nourish this sensitivity on a long-range basis requires constant vigilance, care, hard work, and solid staff training. Weekly sessions where various facets of the therapeutic rehabilitation process are discussed and explored are absolutely necessary to foster and develop the staff. These sessions should be didactic in nature, with ample time for intensive exploration of the rehabilitation process. These weekly meetings can be considered the core of the in-service training procedure, as they are the unifying source that forms the staff into a team. Further, these meetings will allow for differences of opinion on various topics, permitting an air of healthy disagreement, to assure that all aspects of a topic are thoroughly examined and a reasonable consensus reached.

Some centers have initiated a program of weekly group sessions with an outside leader to afford staff an opportunity to ventilate their pent-up feelings concerning blind people, blindness, and their involvement with both. Properly handled, this can be an extremely healthy and useful outlet for the staff and can be one more link in the unifying chain to form staff personnel into a team.

### **Conscious Management**

Once the staff is fully educated in the therapeutic process of rehabilitation, the process must be consciously managed and implemented in daily practice. This is partly accomplished by adapting the process to each individual student, constantly reviewing the application of the process, and the student's reaction to it. This "conscious management" may call for orchestrating various parts of the rehabilitation program, such as the student's initial welcome to the center, his first meeting with the administrator, and his introduction to his fellow students. For instance, the student's arrival in the center and his welcome can set the tone for the greater part of his stay and may even influence his eventual success in the program. To make the very beginning of his program a positive experience, a kind of scenario may be drawn up outlining who will do what and how it will be done. This may sound over-done, but conveying to a usually anxious, somewhat depressed new student that the staff is glad he is there, and that all are ready to help him, may relieve much of his anxiety and permit him to become more quickly involved in his rehabilitation.

**PREPARING FOR THE STUDENT** To help in his "conscious management" of the process, an adequate intake procedure is essential, and frequently very difficult to accomplish satisfactorily. Some residential centers assign a staff member as a field representative, whose function is to process all referrals for the center, gathering as much information as possible for review, visiting the student at home to conduct an intake interview and begin the social casework report, and submitting all findings to whatever admissions or selection committee is established. Just before admission, this information is shared with the rehabilitation staff so they may be as prepared as possible for the student and his own set of problems. This advance knowl-



edge of the student can assist each staff member in establishing his mental readiness and building an approach to the student even before he arrives.

As the student becomes involved in his rehabilitation program and is accepted into the student group, he and his fellow students form a therapeutic model. Within this group, on a formal and informal basis, a strong influence on the person's adjustment occurs. The interaction within the group is both interesting and profound to watch in operation. It can be controlled and channeled through organized group meetings, conducted by skilled group leaders, and aimed at the education of the student, as well as offering an opportunity for expression of feelings. The strength of the group, its energy, is generated by the feelings of the individual towards his visual loss. The total group feeling can frequently grow extremely intense, thus the group leader must be able to assist the group in exploring and working through these feelings.

**COUNSELOR'S ROLE** Individual counseling sessions can markedly help the person express his feelings on an even deeper level. Here the counselor can encourage the person to discuss feelings he may not wish to bring out in the group situation, but feelings that are extremely important to his adjustment. The counselor can act in several different roles in the center; one important role would be as a kind of "ombudsman" for the student group, their representative on the staff who can serve as a buffer between student and patient groups. In many residential centers the counselor becomes the chief member of the psychosocial team, interpreting his opinion of the student's feelings to the staff, both individually and as a group. Also, the counselor can be a spokesman for the student group, conveying their gripes, opinions, needs, and demands to the staff group for their consideration and action.

This obviously intensive psychosocial approach permeates all aspects of life in the center, and strongly influences both student and staff groups. Its overall group effect, however, with all of its emphasis on group strength as an aid in adjustment, and its personalized counseling sessions with each student, eventually wends its way back to the core of the rehabilitation process—the dynamic relationship that is established between the individual staff instructor and the individual blind student. This is where the therapeutic environment is most effectively maintained and nourished, in the interaction between each staff member and each student. The student comes to the staff instructor with a whole complex of problems and situations, and a certain way of acting. The staff member reacts to the student and a complex process is begun, wherein the motivational drives of the student are patterned into effective learning and into establishing a mode of behavior consistent with his new life as a blind person. Indeed, the strength of therapy and the therapeutic environment lies in the ability of the staff members to respond appropriately to the needs of the student, whether these needs are stated and obvious, unstated and subtle, reasonable or seemingly unreasonable.

**THERAPY PROGRAM FOR THE FAMILY** Once the student completes training, he returns home. To effect the transition to home in an orderly manner, most residential centers have some kind of family program where the principal member of the student's family is invited to the center for an organized, structured program, either

individually or with other students' families. These family programs can be useful, and indeed necessary, in involving the family in the treatment process and frequently initiating a therapy program for the family. By the time the family program begins, the student may have reached a level of functioning that enables him to do many more things on his own than before rehabilitation training. This new independence, together with a growing self-confidence and a healthy-self righteousness, may be very threatening to the family members, and needs to be interpreted to the family so they will be able to cope with this new situation. The inner strength that the student has developed for himself may make him appear different, changed, perhaps a little "strange" or distant from them. Understandably, the family may be frightened by this and may experience anxiety. What they are seeing basically is the new person, the blind person, who *is* different, *is* changed from his former sighted self. And the family needs some time to adapt to this "new" person and reorganize their life with him.

**THE EDUCATION PROCESS** The commitment to the therapeutic process by a residential rehabilitation center, not only calls for a continued introspection and self-examination by each staff member, but also the conscious involvement of the family, at the right time, in the right way. Further, all other people involved in the broad rehabilitation picture must be thoroughly indoctrinated and educated into the process by the center. This could include social workers, vocational rehabilitation counselors, rehabilitation teachers, etc., from a state agency for blind persons or other appropriate agencies. Those who are in a position to initiate referrals to the center and who will be involved with the student after training, should have a sound knowledge of just what the center is trying to accomplish and how they go about it. The education process can be accomplished by seminars, individual conferences, and by inviting pertinent agency personnel to participate in scheduled staffings of their students, affording them the opportunity to express their opinion, ask questions of staff, and thus become a contributing part of the rehabilitation team. This will also teach the agency personnel to be aware of the process and how it operates, thus helping them develop patience with it.

**CONCLUSIONS** The process of rehabilitation through development and continuation of a therapeutic environment is not easy; it is demanding, difficult, complex, and often frustrating. For many blind persons it has proven to be the best way to reach a healthy compromise with the situation, and learn how to live with visual loss. Although the process requires the utmost effort of all involved, especially the rehabilitation staff, the task is certainly worth the effort if it enables the blind person to live a more happy, fruitful, rewarding life.

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# Anxiety in the Teacher-Student Relationship as Applicable to Orientation and Mobility Instruction

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■ Success in mobility training is often considered essential by the blind student if he is ever to attain independence. As a result of the tremendous importance mobility training is often given by the student, a certain degree of tension and anxiety is inevitable. No learning takes place without a certain amount of anxiety; a minimal amount of anxiety may serve as a motivator and stimulator or may facilitate the learning process (Ryan, 1962), and as a protective or defensive reaction it may make the student more aware of environmental stimuli. Too much anxiety, on the other hand, may serve as a negative stimulus and result in a learning reduction. Since anxiety, like any emotion, is a normal response, it is good to acknowledge and react to it. The student who shrinks from acknowledgment of his emotions stands little opportunity to understand or control them effectively. Accordingly, an instructor who fails to recognize or understand anxiety is less likely to be able to structure lessons based on success.

The goal of this paper is to discuss the role of anxiety within a teacher-student relationship. Since this is directed toward orientation and mobility instructors, examples will refer to mobility situations, although they are applicable to any learning situation.

A student who is experiencing tension, anxiety or frustration may be too preoccupied to attend to the given task. If an instructor fails to acknowledge the student's extreme tension in a situation and requests the student to perform, it is likely the student will not perform up to his potential and further frustration or anxiety may result. Thus a destructive cycle is established.

**WHAT IS ANXIETY?** It is difficult to look at anxiety as an entity that is separate from other emotions since emotions often, but not always, accompany and intensify each other. For example, a student learning how to cross streets independently may experience both fear and anxiety; the fear of being injured by oncoming traffic and anxiety over the need to succeed, need for importance, or a power struggle with his instructor.

In a study of the validity of Taylor's Manifest Anxiety Scale, Kendall (1954) described anxiety as the extent to which an individual: a) gives exaggerated and inappropriate reactions on slight provocation; b) gives general indications of fatigue not attributable to his physical condition; c) displays difficulties in elimination not explainable by his physical condition; d) appears to be easily upset; e) shows indications of general restlessness; f) sleeps poorly; g) displays symptoms of nausea or vomiting not attributable to his physical condition; h) displays difficulty in concentration or thinking; i) appears to be generally tremulous.

When an individual is faced with an unpleasant situation an immediate reaction may be either "fight" or "flight." The mobility student faced with a difficult lesson may not see "fight" or "flight" as realistic alternatives and frustration or anxiety may result. Colman states: "If fear or anxiety is around, hostility is likely to follow." Anxiety is also defined as a person's reaction to a perceived threat to the self. This threat may be real or unreal but if the person perceives it as a threat, it must be dealt with. Fear, on the other hand, is easier to understand since it is generally considered to be based on reality. When a person experiences fear, there is a feeling of pending or overt danger to his physical structure, as opposed to his ego in the case of anxiety.

**Abstract:** *Anxiety is defined, along with a contrasting definition of fear, and is discussed as a frequent concomitant of an instructional situation. Symptoms and possible causes of anxiety are described, specifically in regard to a teacher-student relationship in orientation and mobility instruction. A number of possible approaches are suggested by which the instructor may reduce or eliminate anxiety in the student, although it is understood that certain teacher-student relationships cause too much anxiety to be tenable.*



**“It is useful to imagine the emotional state of some students as an iceberg . . . The visible portion of an iceberg . . . comprises a mere 10 percent of the total structure, with 90 percent giving support from below.”**

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In general, highly anxious subjects are affected unfavorably by any additional stress, even when this stress is merely what most people would regard as motivation. Learning is slower, retention is less (Diethelm and Jones, 1947), judgment of time and distance are distorted (Langer, Wapner, and Werner, 1961), discriminations are reduced (Saltz and Riach, 1961), efficiency in complex motor tasks is damaged (Ryan, 1962), and flexibility in solving problems is lowered (Cowen, 1952). In addition, there is some tendency for people under threat to regress to an earlier form of response which once under similar conditions gave them a taste of success.

A student who is making little or no progress may be perfectly capable of performing and the instructor may be applying all the appropriate principles and utilizing his technical knowledge. Slowness in the learning process may stem not from instructor input or student ability but rather from the relationship between them. The first step toward reducing or eliminating handicapping anxiety-producing situations is to acknowledge and define the problem. Anxiety is but one of a possible host of reasons for slow learning, such as mental development, physical needs, readiness, etc. Once it is defined, the instructor has a number of alternatives to reduce or eliminate excessive anxiety; these will be discussed later in detail.

**ANXIETY-PRODUCING SITUATIONS** As stated above, anxiety refers to an individual's reaction to a perceived threat to the self. There are many situations or conditions that may initiate this emotional state. Maslow and Murphy (1954) state that a hierarchy of basic needs, ranging from basic biological needs to self-esteem, must be satisfied before an individual will actualize his fullest potential and capabilities. With fulfillment of these basic needs, the mobility instructor can then direct attention to specific situations that might produce anxiety. While the potential for becoming anxious exists within the physiology of the individual, the types of situations through which anxiety may become attached are the following (Musser, Conger, and Kugan, 1969): 1) Anxiety over potential physical harm. 2) Anxiety over loss of love. 3) Anxiety of guilt. 4) Anxiety of the inability to master the environment. 5) Anxiety over deviant self-concept. It must be noted that different types of anxiety-producing situations may occur simultaneously and reinforce each other. This in turn compounds the degree of anxiety experienced.

### **Physical Harm**

Anxiety over potential physical harm is a result of associating certain stimuli with possible pain and danger

through either physical activity or medical complications. Most students are extremely fearful of the possible consequences of crossing a street, while others may place undue emphasis on the possibility of assault. Likewise, a diabetic may experience anxiety or fear that medical and physical complications such as blisters, bruises, or sprains may arise from mobility training.

### **Loss of Affection**

Anxiety over the loss of love arises from the expectation that a source of affection or acceptance will be withdrawn or lost. In this situation, the student wants to be accepted by his instructor for various reasons. He may perceive his instructor as a father figure or an authoritative figure and have an extremely high need to please the instructor. The student may experience anxiety from this type of situation during any phase of instruction if he believes the possibility of rejection is imminent. For example, a student may fear possible rejection if he has succeeded on numerous lessons and suddenly for no apparent reason experiences complete failure. Conversely, a student may have contempt for his and the instructor's roles, which may affect the training. Anxiety over guilt is elicited by the intention of violating a rule or standard, or by following a violation of an internalized standard or value. In this case the student may feel guilty as a result of being late for a lesson, not attempting an assignment, or not reaching a standard he has set for himself.

**ENVIRONMENT** Anxiety over the inability to master the environment occurs when the individual is unable to handle problems and stresses the environment poses. The student may display stress when required to travel during weather conditions he finds undesirable. He may apparently base his reluctance for mobility on poor travel conditions, when in fact he may be extremely frightened of falling or becoming ill. Many students experience anxiety when progressing from indoor to residential travel, residential to small business travel, etc. This sequential progression in itself may create anxiety resulting from increased expectations by either the instructor or student or by a loss of the security of traveling in a familiar area.

### **Inferiority**

Anxiety over a deviant self-concept occurs when an individual perceives a great discrepancy between his own skills, traits, and temperamental qualities and those he feels he should possess. When blinded, an individual must submit to new experiences and values (Lecky, 1945). If these experiences and values are in direct conflict with his self-image prior to the loss of sight, anxiety will occur. A student who has been independent and suddenly finds himself getting lost in driveways or having difficulty “just” walking around the block may feel foolish and frustrated.

In the preceding anxiety-producing situations, stress is a result of internal conflict. There are also situations in which the individual may feel external pressures which in turn affect performance. For example, a student may be in mobility training only as a result of family or peer pressure. In this case, the student may display anxiety not as a result of the mobility training but rather because of undue external pressure. Likewise, in some instances a student may perceive the instructor's own frustration during a lesson. This in turn may create undue anxiety and affect his performance.



## **PREVENTION, REDUCTION, AND ELIMINATION OF ANXIETY**

"The emotional interaction between the mobility instructor and the student is an essential element in the successful reduction of anxiety throughout the mobility training" (Schulz, 1972, p. 129). The amount of anxiety felt by a beginning orientation and mobility student may be somewhat reduced before the initial meeting by a liaison person, who answers questions about the nature of instruction, time, duration, etc. It is also useful to include parents or spouses in planning instruction. A concerned mother who is fearful of her child's independence must be kept informed of progress and goals, and be made to feel a part of the instructional team.

Upon initial contact, the instructor may have a friendly but professional discussion of expectancies and goals plus detailed information about the program. The student should be informed that during the course of instruction mistakes are inevitable and should be expected as part of the normal learning process. Ideally, the student will realize that such mistakes will not result in teacher rejection or failure, a good rapport will be established, and the beginning phases of instruction can be initiated.

Initial instruction may produce a different form of anxiety, in which the student feels he is incapable of attaining the stated goals. Stages of orientation and mobility instruction should be presented in such moderate increments as to facilitate success, self-confidence, motivation, and trust. An instructor should be aware that even though the lessons are presented in an orderly manner, anxiety is still apt to arise.

## **DEALING WITH ANXIETY**

Heathers (1955) describes six methods of dealing with anxiety. Utilizing these methods either separately or in combination may be helpful in the reduction of anxiety. These methods are as follows: 1) "Sink or swim;" 2) distraction; 3) threshold; 4) overlearning; 5) crutch; 6) reassurance.

"Sink or swim" affords the student the option of either attempting to master the situation or avoiding it. A student who is familiar with a route to the neighborhood store may be too apprehensive to travel it until one day he *must* travel the route independently to pick up groceries. If he gets there, and particularly if he does this several times, he may perceive himself as capable of traveling and lose his fear. This is a hazardous method of developing self-confidence, since he may panic and have to be rescued, or he may actually have an accident, thus proving to himself that his fears were correct and making it all the less likely that he will ever be independent again. Even if he does make it safely, his fear throughout the route may have been so great that he will become even more reluctant.

In the distraction method, the instructor reduces the importance of the task at hand. An example is socializing while practicing sighted-guide techniques to alleviate anxiety related to the mechanics. In the interest of conversation and before he quite realizes that he is doing so, the student is performing the skills without undue anxiety.

"The threshold procedure involves taking only a few steps at first, then going farther and farther as confidence grows" (Bauman and Yoder, 1966, p. 180). Orientation and mobility instruction involves teaching basic sighted-guide techniques before self-protection techniques. Once again this method shows the sequential order of instruction. During this interval the student makes the transition from dependence to independence.

By overlearning a skill through repetition and practice, a student may become more proficient and gain confidence in his travel ability. Even if the student becomes emotional under real travel conditions, he is very likely to do the right thing as a reflex action. The student who has overlearned correcting a veer at a crossing is apt to continue making any necessary corrections even with distractions.

## **Crutch Method**

The crutch method implies dependence upon some instrumental aid which guarantees safety until the individual can develop enough self-confidence to get along without it. The instructor may use this method when initially teaching lighted street crossings. At a busy intersection the instructor may first use sighted-guide to negotiate the crossing. Then the student may be encouraged to use his cane while being guided, in addition to recognizing the surge. While the instructor is accompanying the student he is gradually diminishing the dependent relationship.

The reassurance method involves a trust relationship which is due to the student's confidence in his instructor's professional handling of responsibility. "Reassurance is especially important to reduce anxiety under conditions of threat. Sometimes the mere presence of others, but especially their verbal assurance of support may reduce anxiety to the point where the individual can reach his goal himself" (Bauman and Yoder, 1966). Physical contact may either increase or reduce anxiety. Methods such as placing a protective hand on the student's shoulder, or encouraging relaxation techniques (e.g., Hatha Yoga breathing exercises) and physical movement (such as shaking a tense limb) are also techniques of anxiety reduction.

"An important determiner of how an individual meets stress or functions under anxiety is the amount and nature of his preparation for the stress situation" (Bauman and Yoder, 1966). According to Haggard (1949): "For maximal protection against emotional stress, the individual should have experienced all the possible contingencies that might arise, and should have learned how to handle them. It is not enough just to have read or heard about what to do in a crisis—the person should have experienced a less extreme version of the situation in training and learned what to do. This ideal may be impossible to achieve in practice, but in any case the individual should be so instructed during training that he will not be at a complete loss as to what to do, and have to fall back on his imagination. To have been through such experiences and to have developed responses which are quickly and automatically executed makes the individual both more self-confident and more efficient in his work—at a time when seconds may be of vital importance."

**MONKEY SEE—MONKEY DO** Modeling may be an effective way to bring about behavior changes and reduce anxiety. Through modeling the student imitates the instructor—"monkey see—monkey do." For example, a student who is having difficulty grasping the concept of the touch technique may benefit from a verbal and physical demonstration by the instructor.

There are two types of anxiety elimination which the instructor may utilize. One technique is only a temporary elimination such as a coffee break during an anxious time of a lesson. Permanent elimination, on the other hand, may necessitate the termination of a student or the changing of instructors. Permanent elimination may become appropri-



riate under the following conditions: personality conflict, sex conflict, lack of student motivation, or for health reasons.

**SUMMARY** It is useful to imagine the emotional state of some students as an iceberg. On the surface the student may present either a cool, controlled exterior or one in turmoil. The visible portion of an iceberg, however, comprises a mere 10 percent of the total structure, with 90 percent giving support from below.

No learning experience occurs within a vacuum. Even in a one-to-one student-teacher relationship, it must be assumed that a host of negative or conflicting influences may be present. The student who is experiencing difficulty learning a task may be unconsciously preoccupied with a spouse who wants a divorce, adjustment to blindness, an instructor representing a father-figure, or many other underlying influences. Even the best instructions, under these conditions, may be thwarted. Therefore, it is essential to employ other disciplines to help deal with student readiness. A team approach using rehabilitation counselors, social workers, teachers, and parents may be beneficial to assess student readiness or to help in solving emotional difficulties.

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Classification of Visual Performance

By August Colenbrander, M.D.  
and Bruce E. Spivey, M.D.

Classification of visual performance has traditionally been according to the simple dichotomy of "legally seeing" versus "legally blind." This oversimplification has ignored the fact that there is another group with unique problems: patients with low vision. They differ from the blind in that they have utilizable vision. They differ from persons with normal vision because they need assistance to optimize their use of vision.

The upcoming ninth revision of the International Classification of Disease of the World Health Organization (WHO) will include categories for both Low Vision and Blindness. It will also contain a supplementary classification on Impairments, Disabilities, and Handicaps. Because of the wide variety of disciplines interested in low vision and blindness, it is important that there are guidelines on the use of these terms. Based on discussions with individuals in ophthalmology, education, rehabilitation, health statistics, etc., such guidelines have recently been drafted by the Committee on Terminology of the American Academy of Ophthalmology and Otolaryngology and the Committee on Information of the International Council of Ophthalmology.

The guidelines divide the spectrum of visual potential into three ranges instead of the two previously used. The suggested definition of blindness (20/500 or less) is based on a WHO recommendation of 1972. This would not change eligibility for benefits in the United States, generally based on visual acuity of 20/200 or less. However, it is recom-

mended that in these eligibility guidelines the term "legal blindness" should be replaced by "severe visual impairment."

The guidelines discuss the distinction between visual impairment, visual disability, and visual handicap. It is important to recognize that these terms are not synonyms. Visual impairment refers to the organs of vision. An example is macular degeneration. Visual disability refers to the abilities of an individual. An example is inability to read. One should avoid describing an individual as impaired—his eyes are impaired. The individual has an impairment; he is disabled. Handicap refers to the actual disadvantage an individual experiences. Various individuals may be handicapped to different degrees by inability to read. Medical services are generally aimed at reducing impairment. Educational and rehabilitative services are aimed at reducing the handicap resulting from an impairment. Both are equally important in a comprehensive low vision service.

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OLD:

"legally seeing"	"legally blind"
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20/200

NEW:

(Near-) normal	Low Vision	Blindness
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20/80

20/500

# Community Work Experience as Part of Adjustment Training for Blind Persons

**ROBIN H. LEACH**

*Ms. Leach is rehabilitation director at the Gateway Hope Center of Jacksonville, Florida.*

■ Gateway Hope Center, Inc. of Jacksonville, Florida was established in 1970 as a rehabilitation facility and sheltered workshop for blind and visually handicapped persons in Jacksonville and Northeast Florida. During the first few years, the rehabilitation program primarily served multiply handicapped persons in need of sheltered workshop employment. Evaluation and work adjustment training were geared toward sheltered employment; many "home-grown" tests and worksamples were devised to assess clients' abilities to produce in the workshop. When clients reached a level of production equal to that required in the shop, and when openings existed, they were placed in the shop.

In 1974, we began to receive many referrals from Florida's Bureau of Blind Services of clients who were capable of more than sheltered work. This created the need for a broader-based evaluation and training program. At first, we attempted to develop more complex worksamples and job samples. Contacts were made with businesses and industries in the community, and attempts were made to duplicate actual jobs in our facility in order to "try out" clients on tasks before placing them. The first contacts made were with a motorcycle supply manufacturer for whom the workshop was doing contracts, and a dry-cleaning plant. We duplicated production of "sissy bar pads" and several packaging tasks. We found, after using the job samples for a period of time, that a client might produce very well on a task in the workshop but fail once placed on the job.

Realizing that job samples and simulated activities were not the answer to all problems, we regrouped and decided that in order to assess a client's abilities at a job, we must actually observe him or her on the job for a period of time. Thus, the work experience program began.

**PLANNING WORK EXPERIENCE PROGRAM** Beginning a program of community work experience involved a great deal of planning. Many things were considered—the job market in Jacksonville, interests and abilities of clients, how to approach employers, and which employers to contact first. In addition, we realized that work experiences would probably be divided into two groups—those geared toward developing specific job skills and those providing a general orientation to the world of work.

Our staff is limited to a rehabilitation director, an evaluator, a social worker, a mobility instructor and a braille instructor. All staff members participated in planning the program. In surveying the job market, we found that more jobs were available in service occupations than any other field. This we discovered through checking with the Florida State Employment Service, the Bureau of Blind Services, and newspaper advertisements. These types of jobs, therefore, were the first pursued as work experience sites.

## First Successful Placement

Our first contact for a site was made for a mentally retarded young man with very limited vision who was referred to us from West Florida. He had no real concept of the world of work, but stated time and again that he wanted to wash cars. We contacted the owner of a local used car lot and asked if it would be possible for our client to wash cars on his lot a couple of days a week in order for us to assess the feasibility of this vocational goal. The owner of the lot agreed and the staff began working with the client in order

**Abstract:** *In order to broaden the scope and increase the value of work adjustment training, Gateway Hope Center added on-the-job work experience to its rehabilitation program. This article reports on the success of the program and includes recommendations for implementing a similar program in other areas.*



to prepare him for his new experience. A regular part of the evaluation is the Behavior Identification Form, produced by Stout State University, Wisconsin. This was completed and reviewed with the client, and it was determined that he did not exhibit any behaviors which would prevent him from succeeding in work. Group and individual counseling sessions were held, mock interviews were performed, then the client was ready to begin. The first day on the work experience, this young man demonstrated a great deal of enthusiasm. He devised new ways of completing his tasks and kept working without needing a great deal of supervision. He again told our staff that he would like to work in a car wash as a career. His employer verified his good performance, and recommended placement for him in this area on his return to his home town. After a brief time at this site, he returned to his home town where his counselor had a job waiting for him in a car wash. This was eighteen months ago, and to our knowledge, he is still working there. The owner of the car wash has requested more people like him from the Bureau of Blind Services.

**CASE HISTORIES** At the same time, several clients were referred to us who had nursing or nurses' aide work experience. Our social worker knew of a nursing home in an area close to a bus line accessible to clients so she contacted the director of the nursing home about accepting one or two persons in work experience. They, too, were agreeable, and one client began. This woman had worked as an licensed practical nurse in the past, but when her vision failed, her confidence did, too. She was placed at the nursing home two days per week, performing all the duties of a nurse's aide. We carefully coordinated her participation at the work experience, and she quickly began to exhibit excellent work traits. Our staff also worked with her on applying for positions both at that site and at another hospital where she had previously been employed. The nursing home personnel told her the next opening they had would be hers; however, the hospital where she previously worked had an opening first and she accepted a position there instead. It was quite a boost to her confidence being able to choose between two potential employers.

With two successes behind us, our staff decided to attempt a broader base of work experiences. A young man, also mentally retarded and legally blind, possessed a strong interest in working with animals. We contacted the local zoo, and several veterinarians, but were rejected by all of them. Finally, the local humane society agreed to take the young man as an animal handler trainee. He gained valuable experience cleaning cages, holding animals for inoculations, and on one occasion being bitten by an angry cat—which showed him the romantic notion of working with animals had more drawbacks than he had previously thought! His work habits, however, were inadequate. After completing a task, he stood, sometimes for hours, until his supervisor assigned him another task. While this might be considered a failure, we did not feel it was a total one. Work experience, after all, tells whether a person is or is *not* suited for employment at a particular time.

An area requiring skill in which clients have already participated in work experience is transcription typing. Gateway has vocational training in this area, and the first client ready for experience was placed three days a week at Florida's Division of Family Services, the public assistance agency for the state. This young woman out-produced the

other transcribers two-to-one in the first week. She also learned independent travel skills and developed excellent work habits. After a few months' work experience, she was hired permanently by the Division and is still successfully employed there.

Another client expressed an interest in working with children. She already had two years of college and experience in the field. Through our acquaintances in the school system, she was placed part-time in a junior high school as a teacher's aide with remedial students. On alternate days, she worked at a day care center.

Perhaps the most successful work experience site has been Hope Haven Children's Hospital. Contact was made with the hospital personnel director who was very receptive toward accepting clients in work experience. Clients have been placed there in transcribing, food services, laundry work and microfilming. All of the hospital staff has appeared eager to work with trainees, and first consideration in hiring has been given to qualified, competent trainees (two trainees have been successfully placed there).

**CLIENT READINESS** Our work experience program has been received enthusiastically by our clients. By adding this step to our rehabilitation program, clients can see progress being made toward their own employment. Everyone wonders when he or she will be "ready" for work experience and is aware of what behaviors need changing in order to become ready. Placements are being made more quickly and appropriately; Bureau of Blind Services counselors can be assured that their clients are indeed job ready.

Employers, too, have received the work experience program with enthusiasm for the most part. With money tight and the economy shaky, most employers are functioning with a minimum number of employees; most, if approached positively, welcome added workers if assured they can count on agency personnel in the event of problems. Most of them we found were willing to hire blind persons after our clients proved they could perform the job.

### **Rounding Out the Training**

In addition to work experience many ancillary services are provided to clients at the center. Communications, personal management, mobility, and adult basic education are offered if they are needed by the client to attain a particular vocational goal.

During the first year of Gateway Hope Center's work experience program, 18 visually handicapped clients participated in the program. Eleven of the 18 have been successfully placed in competitive employment. Four clients are still being served; one, though not salaried, began doing volunteer work at the site of his work experience; and one is now ready for placement. Only one client was dropped from the program due to physical limitations. We are enthusiastic about our initial results, and hope to expand the program in the next year, adding a wider variety of work exposure for clients, with a broader potential for employment in a shorter time period.

**RECOMMENDATIONS** The following is a list of recommendations for starting and implementing a work experience program:

1. A complete vocational evaluation, including behavioral observation, vocational interests, physical abilities and disabilities, and motivation should be made prior to



admission to work experience and should be made available to work experience supervisor.

2. Job surveys should be conducted to determine areas of potential placement. Contacts must be made carefully with employers. (It might be best to start with employers a staff member or board member knows, but with a positive approach, many employers will happily assist.)

3. As in any placement, the first client on a work experience should be the most likely to succeed; later, those with more problems can be introduced.

4. Efforts should be made to create work experience in sites with a broad range of activities, i.e. hospitals, thereby

giving clients a chance to perform a variety of duties.

5. Close contact, at least weekly, should be made with the supervisor, to be aware of and to help solve problems which arise. Written reports should be obtained from supervisors, stating when a client is ready for placement, thus eliminating unnecessarily extended training. Staff should let the employer know what types of reports and information are needed.

6. Close coordination is necessary between agency, client, rehabilitation counselor, and employer to assure that the program meets the client's needs.

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## First International Conference on the Situation of Blind Women Held

Blind women from 36 countries met in Belgrade, Yugoslavia, November 18 to 20, 1975 to observe International Women's Year. This first International Conference on the Situation of Blind Women was cosponsored by the World Council for the Welfare of the Blind and the International Federation of the Blind. The Union of the Blind of Yugoslavia and the Federal Conference of the Socialist Alliance of the Working People of Yugoslavia were the organizers of the meeting which attracted more than 110 delegates.

Among the papers given at the meeting were: "The Blind Woman and Her Family and Participation in the Community in an Urban Setting," Alma Murphey, United States of America; "The Blind Woman and Her Family and Participation in the Community in a Rural Setting," Dr. Fatima Shah, Iran; "Residential Schools for the Blind," Nada Zaric, Yugoslavia; "Rehabilitation of Blind Women in Rural Communities," Doris M. Anin, Ghana; "Access to Training and Employment, Sheltered Workshops and Home Worker Projects in the U.S.S.R.," Nonna Koulitcheva, Union of Soviet Socialist Republics; "Access to Training and Employment in Rural Occupations and Cooperatives," Grace Ingham-Wright, United Kingdom; "Access to Training and Employment," Joan L. Williams, United Kingdom; "Education of Our Blind Children," Dr. Isabella L. D. Grant, United States of America.

In addition, Dorina de Gouvea Nowill reported on the United Nations World Conference of International Women's Year held in Mexico City which she attended as a member of the Brazilian delegation and as a representative of the World Council for the Welfare of the Blind of which she is vice president. The United Nations meeting "urged governments to provide social and rehabilitative services for physically, mentally or economically handicapped women of all ages."

At its close, the International Conference on the Situation

of Blind Women adopted a resolution that included the following points:

*Requests* all appropriate Specialized Agencies of the UN in considering and implementing programs for the advancement of women, to make adequate provision for the particular needs of the blind and visually handicapped.

*Encourages* the International Research and Training Institute for the Promotion of Women, created by the UN World Conference of International Women's Year, to include in its program of study the situation of blind and visually handicapped women.

*Urges* all governments in programs and plans for education, health, social security and family welfare to take special account of the needs of blind and visually handicapped women, to develop such plans with the expert help of the organizations of and for the blind and to implement them by the use of professionally trained personnel.

*Recommends* international and national blind welfare organizations to review the adequacy of their provision for blind and visually handicapped women and to ensure that a fair proportion of the resources available should be channelled into practical programs designed to improve the education, rehabilitation, including the establishment of centers where they do not exist, employment, according to individual need, and the social status of women.

*Draws the attention* of governments and blind welfare organizations to the special needs of blind women who have additional handicaps.

*Encourages* national blind welfare organizations to take the initiative in the formation of national multi-disciplinary committees for the prevention of blindness.

*Invites* the appropriate Specialized Agencies of the UN and governments to undertake public information programs by means of all mass communication media regarding the capacities of handicapped persons in terms compatible with human dignity.

*Exhorts* blind and visually handicapped women to participate actively in the attainment of these objectives through their organizations of and for the blind.



# Radio Services for the Print-Handicapped

Every effort has been made to bring this list up to date. However, several services are in the planning stage and may be on the air by the time this issue of the *New Outlook* reaches you. Arranged alphabetically by states, the list includes city, call letters, and name, address, and telephone number of operating agency.

## SUBCHANNEL (SCA)

STATE	CITY	STATION	PRODUCING AGENCY	CONTACT
California	San Diego	KPBS-FM	Station	Ms. Margaret Vernon SCA Coordinator, KPBS-FM San Diego State University 5146 College Avenue San Diego, CA 92182 (714) 286-6431
District of Columbia	Washington	WETA-FM	The Washington Ear, Inc.	Dr. Margaret Rockwell President, The Washington Ear 10111 Colesville Rd., Rm. 125 Silver Spring, MD 20901 (301) 681-6636
Illinois	Belleville	WMRY-FM (c)	Radio Information Service for the Blind and Handicapped	Father Boniface Wittenbrink Executive Director, RISBH Shrine of Our Lady of the Snows Belleville, IL 62223 (618) 397-6700
Kansas	Lawrence	KANU-FM	Audio Reader	Ms. Rose Hurwitz Director, Audio Reader Broadcast Hall, Kansas Univ. Lawrence, KS 66044 (913) 864-4600
	Wichita	KMUW-FM	Wichita Audio Reader	Mr. Alan Frank Station Manager, KMUW Wichita State University 1751 N. Fairmount Avenue Wichita, KS 67208 (316) 689-3390
Michigan	East Lansing	WKAR-FM	Station	Ms. Henri Kruse Manager, Radio Talking Book 112 Auditorium Building Michigan State University East Lansing, MI 48823 (517) 353-3232
Minnesota	Collegeville	KSJR-FM	State Services for the Blind and Visually Handicapped	Mr. C. Stanley Potter Director, State Services for the Blind and Visually Handicapped 1745 University Avenue St. Paul, MN 55101 (612) 296-6034
	Chandler/Pipestone	KRWS-FM		
	Duluth	WSCD-FM		
	Minn/St. Paul	KSJN-FM		
Nebraska	Moorhead	KCCM-FM	Station	Mr. Richard Parker Radio Talking Book Specialist KIOS-FM, Technical High School 3219 Cuming Street Omaha, NE 68131 (402) 556-8176
	Rochester	KLSE-FM		
Ohio	Columbus	WOSU-FM	Central Ohio Radio Reading Service, Inc.	Mr. Stanley Doran Executive Director, CORRS 229 S. High Street Columbus, OH 43215 (614) 464-2614

STATE	CITY	STATION	PRODUCING AGENCY	CONTACT
	Youngstown	WYSU-FM	Station	Mr. Robert Peterson Program Director, WYSU Youngstown State University 521 Wick Avenue Youngstown, OH 44503 (216) 746-1851
Oklahoma	Oklahoma City Tulsa	KAFG (c) KKUL (c)	Oklahoma Educational Radio Talking Book	Mr. Travis Harris Director, Division of Visual Services 1108 NE 36th Street Oklahoma City, OK 73111 (405) 521-3451
Oregon	Portland	KOAP-FM	Golden Hours, Inc.	Mr. Graham Archer Executive Director, Golden Hours, Inc. 1804 SE 100th Avenue Portland, OR 97216 (503) 227-2393
Pennsylvania	Erie	WQLN-FM	Radio Talking Library, Erie Center for the Blind	Mr. William Frazier Director, RTL 2402 Cherry Street Erie, PA 15602 (814) 868-4654
	Lancaster	WLAN-FM (c)	Lancaster County Br., PA Assn. for the Blind	Mrs. Marion Campbell Director, LCB/PAB 506 West Walnut Street Lancaster, PA 17603 (717) 394-7644
	Philadelphia	WUHY-FM	Radio Information Center for the Blind	Mr. Frank Kastner Director, RICB 919 Walnut Street Philadelphia, PA 19107 (215) 922-5450
	York	WGCB-FM	York County Blind Center	George F. Harris Executive Director York County Blind Center 800 East King Street York, PA 17403 (717) 848-1690
South Carolina	Charleston Greenville Columbia-Sumter	WSCI-FM WEPR-FM WMPR-FM	SC Commission for the Blind	Mr. Bob Somogyi Program Manager, Radio Talking Book SC Commission for the Blind 2901 Millwood Avenue Columbia, SC 29205 (803) 785-7771
South Dakota	Brookings	KESD-FM KUSD-FM		James V. Boyd Manager KESD-FM Solberg Hall Brookings, SD 57006 (605) 688-4191
Tennessee	Memphis	WLYX-FM		Mr. George McClintock WLYX 2000 North Parkway Memphis, TN 38112
	Nashville	WPLN-FM	Station	Mr. Alvin Bolt General Manager, WPLN-FM Public Library of Nashville and Davidson County 8th Avenue North & Union Nashville, TN 37203 (615) 244-4700



STATE	CITY	STATION	PRODUCING AGENCY	CONTACT
Washington	Seattle	KUOW-FM	Radio Talking Book, Seattle Public Library	Ms. Elaine V. Davenport Coordinator, RTB 811 Harrison Street Seattle, WA 98109 (206) 464-6932
Wisconsin	Brule Colfax Delafield DePere Highland Holmen Madison Rib Mountain Park	WHSa-FM WHWC-FM WHAD-FM WPNE-FM WHHI-FM WHLA-FM WERN-FM WHRM-FM	Wisconsin Radio Reading Service	Mr. Dean Pilgrim Director, WRRS 905 University Avenue, Suite 307 Madison, WI 53715 (608) 255-7730

## MAIN CHANNEL

STATE	CITY	STATION	PRODUCING AGENCY	CONTACT
Colorado	Greeley	KUNC-FM	Station	Mr. Neil Best Education Director, KUNC University of Northern Colorado Greeley, CO 80639 (303) 351-2843
Iowa	Des Moines	KDPS-FM	Iowa Commission for the Blind	Dr. Duane Gerstenberger Iowa Commission for the Blind 4th and Keosauqua Des Moines, IA 50309 (515) 283-2601
Louisiana	New Orleans	WWNO-FM	Radio for the Blind & Print-Handicapped	Ms. Gretchen Fontan RBPH c/o Archdiocese of New Orleans 7887 Walmsley Avenue New Orleans, LA 70125 (504) 899-1144
Michigan	Flint	WFBE-FM	Service Center for the Visually Impaired and Genessee Federation of the Blind	Ms. Susan Kilmer Manager WFBE-FM 605 Crapo Street Flint, MI 48503 (313) 238-8361
New Jersey	South Orange	WSOU-FM	Electronic Information and Education Ser- vice of New Jersey	Mr. John Mulvihill c/o WSOU-FM Seton Hall University South Orange, NJ 07079 (201) 762-9000 Ext-342
New York	Loudonville	WVCR-FM		Father Angelus Netzer, OFM WVCR-FM Siena College Loudonville, N.Y. 12211 (518) 783-2365
	New York City New York City	WFUV-FM WNYE-FM	In Touch Networks, Inc.	Mr. James R. Jones Executive Director, In Touch 36 West 46th Street New York, NY 10036 (212) 869-1662
Oregon	Portland	KBPS-AM	Station	Dr. Patricia L. Swenson Manager KBPS-AM 546 NE 12th Avenue Portland, OR 97232 (503) 234-5469

STATE	CITY	STATION	PRODUCING AGENCY	CONTACT
Wisconsin	Madison	WHA-AM	Station	Mr. Ronald C. Bornstein Director of Radio and TV, WHA Vilas Communications Hall 821 University Avenue University of Wisconsin Madison, WI 57306 (608) 263-3970

## Review

**Radio-Information Services for the Print-Handicapped Handbook**, by Samuel C. O. Holt, Cheryl Strange et al. Washington, D.C.: The Corporation for Public Broadcasting, 1975. \$10.00.

**Reviewed by Frank Kastner**

Except for the names and addresses of people with money, this handbook sets forth everything you need to know to set up and operate a radio reading service for the blind, visually handicapped, or physically handicapped listener.

In 14 chapters, arranged under four general topics, Sam Holt and Cheryl Strange of the Corporation for Public Broadcasting have assembled in-depth discussions of the philosophical aspects of the need for special radio services and their adequacy for the job to be done; the challenges faced by management, engineering and program personnel; legal questions, especially copyright restrictions and broadcasting regulations; and the role of the volunteer and the consumer. Each section begins with a cogent overview of the topic under discussion. To each is appended a selection of articles by experienced persons in the field: librarians, program personnel, engineers and attorneys. Also included are detailed examples of actual operations: the floor plan and equipment list of the Radio Information Center for the Blind in Philadelphia; eligibility requirements, application forms and reading tests distributed by the State Services for the Blind in Minnesota; the "timetable" used in organizing the Radio Talking Book Service at the University of Michigan; a cost analysis prepared by Dr. Michael E. Porter of the Graduate School of Business Administration at Harvard University; articles on subcarrier receivers, transmission equipment and test procedures by Eric Small, a nationally-known engineering consultant, by Robert Watson, engineering chief at the Minnesota State Services for the Blind, and by Daniel B. Reider, Director of Engineering for Minnesota Public Radio; and so on.

A few specifics are already out of date. But the great majority of this material will prove invaluable for years to come. And the handbook's looseleaf format makes updating relatively easy. Furthermore, the Corpo-

ration for Public Broadcasting plans to publish revisions as the need arises. Examples would be the section on copyright and the excerpts from Federal Communications Commission (FCC) rulings. The copyright law is even now under revision, and some aspects of the FCC regulations are awaiting final rulings.

### Section Needed on Funding

Recent developments indicate that an entirely new section on sources of public monies for radio reading services might be added to the handbook. Philadelphia's Radio Information Center for the Blind, for instance, may well become the first such service to receive federal and state funds under the new Title XX of the Social Security Act. Both Philadelphia and Washington's *The Washington Ear* receive small amounts from local county governments. There is also the possibility that subcarrier services may receive funds for the purchase of receivers from the Department of Health, Education and Welfare under H. R. 9630, *A Bill to Extend the Educational Facilities Program*. This would relieve subcarrier services of the need to seek private sources of money for one of their biggest capital investments.

At last count, there were 32 radio reading services scattered around the United States. All are an attempt to provide detailed, up-to-date news and other useful information to those who cannot take advantage of printed material. The simplest way to do this is to read articles from local newspapers on the radio. In most cases, the reading is done by volunteers over non-commercial, educational, or "public radio" FM stations. Since these programs may be heard by anyone with an FM radio, this system is usually called "open FM." An alternative is to use the *subcarrier* of an FM station, which can be heard only by listeners who have a *subcarrier receiver*. "Open FM" services are usually limited to a few hours a week; "subcarrier" services, however, sometimes operate eight to seventeen hours a day, seven days a week. Because the FM station which provides the subcarrier must apply to the FCC for a "subcarrier authorization," this type of service is commonly referred to as "SCA."

### Open FM and SCA

Each of these alternatives has obvious advantages and limitations. The strongest advocate of "open FM" is Florence Granis, former assistant director of the Iowa Commission for the Blind. Her viewpoint is set forth in this handbook in an article originally published in *The Braille Monitor* in December, 1974. The principle spokesman for the SCA approach—indeed, the man

who has done more than anyone else to foster and encourage SCA services—is C. Stanley Potter, director of the Minnesota State Services for the Blind and Visually Handicapped. Mr. Potter's article, prepared especially for this handbook, includes a brief history of how the Minnesota Radio Talking Book was organized and how it became the largest and most elaborate system in the country.

### Unanswered Questions

Two unanswered questions arise out of a study of this handbook: Why do so many large metropolitan areas lack an adequate radio reading service? How can areas with small, scattered populations best serve the visually-handicapped? To take the last question first, I, for one, would like to see a chapter on the development of such services as the Lancaster, Pennsylvania Radio Talking Library, which reaches a visually handicapped (not just legally-blind) population of certainly no more than 12,000. How does Lancaster provide sixty-three hours service per week, for instance, while Metropolitan New York, with a legally-blind population 16 times as large (close to 200 thousand persons) has been able to offer only three and a half hours? True, New York has three "all news" radio stations. But Lancaster is served by two "all news" stations in Philadelphia. Are the blind of New York, Los Angeles, Boston and Chicago less interested in the sighted world than the blind of Lancaster or Columbus? Is there no one in New York or Chicago with the persuasive charm and organizational skill of Lancaster's Marion Campbell or Belleville's Father Boni Wittenbrink?

There are no easy answers—perhaps no answers—to these questions. Indeed, they may be outside the intent of this Handbook. But a closer look at what the smaller cities have done, especially how they have succeeded while major metropolitan areas are still struggling painfully toward "step one," would have been a very valuable addition.

There is no such thing as a free lunch, or a sure-fire blueprint for success. But this Handbook is invaluable. It should be in the hands of each and every person involved in planning or operating a radio reading service for the visually handicapped. Print copies are available at ten dollars each from: Cheryl Strange, Corporation for Public Broadcasting, 1111 16th Street, N.W., Washington, D.C. 20036. Braille and cassette tape editions are in preparation. It is hoped that the cassettes will be available in April 1976; no date has been set for the appearance of the braille edition.

*Mr. Kastner is the director of Radio Information Center for the Blind, Philadelphia.*



# Comment

*A special forum for individuals to respond in detail to material published in the New Outlook for the Blind or elsewhere, to present new ideas, or to raise issues which relate to the specialized field of work with blind and visually handicapped persons. Contributions should be 350-1000 words in length.*

## The Problem of Adult Learning Deficiencies in Rehabilitation . . . What's the Solution?

**Charles H. Wacker, Jr.**

No effective method has been developed to date of remediating basic learning deficiencies in blind (or sighted) adults undergoing rehabilitation training. As a result, time in these programs must be extended for weeks, sometimes months, in order to try to fill in gaps in grammar, spelling, and mathematics that seriously curtail independence.

In one rehabilitation center for blind adults being trained for competitive employment, the Vocational Independence Program of the Foundation For The Junior Blind, Los Angeles, it is reasonable to say that approximately 80 percent of the clients (ages 18 to 45) have serious learning deficiencies. So far, no effective solution has been found in the conventional methods of remediation.

In the majority of cases, there has been a failure, for one reason or another, to achieve the basics at the appropriate time in the learning cycle—the elementary grades. This lack has imposed limitations on the cultural status of the individual. To compensate, he or she socialized only with peers who ignored the deficiencies or treated them as irrelevant.

### Case Studies

One client, adventitiously blinded, spent all of his adult sighted life working in a cannery where syntax and grammar were of no concern. Most of his interchange of information relied on gestures and facial expressions. When he lost his sight, his principal means of communication was abruptly cut-off. He had to learn to rely on braille and the typewriter, but immediately became bogged down by his language deficiencies.

Another client, congenitally blind, had completed high school. Although continuously exposed to grammar and spelling in the public school setting, she didn't really understand the rules. She had never been

adequately evaluated in the subjects, and had been living in an isolated, over-protected environment where she had little occasion to apply the skills. Her deficiencies were not evident to her until she was required to write business letters.

A third client, a housewife for twenty years prior to her blindness, entered the rehabilitation program to become a medical transcriber. Her glaring spelling and syntactical errors presented virtually insurmountable barriers to the achievement of her objective.

### Barriers to Remediation

Before any of these clients could make meaningful progress in their total rehabilitation for competitive employment, they had to get involved in extensive remediation programs. Yet most of the material available to them was irrelevant. The grammar, spelling, and vocabulary texts and workbooks on the market were either juvenile or sighted oriented. Adult evening courses in the local high schools were geared to the sighted. Even if it were feasible to transcribe the lessons into braille or put them on tape, the essential reinforcement would be inadequate. The blind individual would have to work independently without the benefit of the instructor's spontaneous feedback.

As one adult high school instructor pointed out, so difficult and tedious are English remediation classes that even the highly motivated sighted students preparing for specific short-term objectives, such as civil service jobs, citizenship, or marriage, must be continually encouraged and reinforced throughout the class period to keep going.

Present prerecorded tapes and Language Master Cards seem geared for sighted children of the middle class environment. The impact of this material on mature, blind adults is demoralizing, lessens incentives and causes frustration. You can hardly expect a person in his thirties, with deep psychological and physical problems to worry about learning language remediation when plunked down in front of a machine that spews out monosyllabic words and sentences dealing with boys and girls playing with a ball. The very nature of the exercise is humiliating for the listener who is suddenly aware of his lack of knowledge for the first time.

Some success has been achieved by individual tutoring, but this is limited by: (1) the client's reluctance to study independently, (2) the need to rely on volunteer teachers with varying degrees of skill and interest, and (3) the uncertainty of the tutor's schedule.

Since very little learning can take place without motivation, the individual must want to correct his deficiency. Some clients refuse to acknowledge the problem. Others merely verbalize interest in remediation. Many become discouraged along the way and quit. Unfortunately, many learning-deficient blind men and women have sat so long staring and drifting that incentive is an abstraction that has little meaning for them. Is there an answer to their problems?

*Dr. Wacker is educational supervisor for the Vocational Independence Program, Foundation For The Junior Blind, Los Angeles.*

## Workshop Accreditation to Improve Employability

**Austin G. Scott**

It is the responsibility of all agencies and workshops serving blind and visually handicapped people to accept high standards and become involved in the continuing process of updating and upgrading all areas of services. To effectively evaluate, train, place, inspire, and motivate those blind persons who need our services, we must strive to be competitive and progressive; to maintain a profitable position; and most importantly, to demonstrate to the entire community that we are responsible, capable, business-oriented people.

### What Is Accreditation?

Accreditation is the granting of recognition to a workshop or agency by an official review board. This board is the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped (NAC). This recognition means that minimum standards are applied in all phases of workshop operations. Each accredited workshop pledges itself to a continuous program of evaluation and improvement by which it maintains its accredited status.

The initial step toward accreditation of a workshop is the development of an in-depth self-study. This self-study allows the workshop to rate itself with national standards. Standards are reminders of what should be done and a source of tested ideas for improvement. Experience indicates that the self-study process alone will enable a workshop to improve its services and management.

The second step toward accreditation is to send copies of the self-study to NAC. Arrangements are then made for an on-site visit. A team of men and women trained in program management, usually including blind and sighted individuals, receives input from the staff members, board members, community leaders, and the blind persons served. After a three-day visit, this team of professionals makes a detailed report to NAC.

On the basis of this report and other data, NAC makes one of three possible decisions: (1) to grant accreditation for up to five years, (2) to defer a decision until specific improvements have been made, or (3) to refuse accreditation. The aim of the entire accreditation process is to help each workshop to do a better job of serving the blind and visually handicapped.

### Workshop Accreditation

A good workshop will recognize the value of accreditation and the self-study. The standards applied are minimum stan-



dards. These standards provide guidelines to develop a well-rounded workshop—a workshop where blind and multiply handicapped persons can be prepared for employment in competitive industry.

Accreditation requires broad services for the employees in the workshop. Competent evaluation, prevocational and vocational training, and social service programs all play important roles in preparing blind persons for workshop employment and placement in competitive industry. Good standards will require that workshops be run on a business-like basis, with one goal being to generate working capital for growth and expansion. This philosophy of operation acquaints the blind person with the ways of competitive industry while still in a sheltered situation.

If a workshop is conducted like a business, the blind person can better adjust to outside employment. Good working conditions, fringe benefits equal to those of area industry, and employee input on management decisions are all a part of modern employment. Such conditions should also be a part of workshop employment. With the utilization of standards, this can be accomplished.

Accreditation also encourages a strong board of directors with active committees, such as finance, personnel, sales, short and long-term planning. Such committees provide the workshop with the benefits of broad expertise in important areas.

#### **Modern Workshop Standards**

Along with important recommendations in many areas, accreditation realizes that workshop management needs to possess such skills as imagination, ingenuity, a good knowledge of business conditions and the business community. The up-to-date workshop uses automation whenever it is feasible, because automation makes a shop more competitive. Automation of many operations creates jobs to fit the needs of the blind person. This is important as many workshops are employing increasing numbers of multiply handicapped blind people.

Before the automation of workshops, we were limited in our ability to hire the severely handicapped. With automation, however, we have found that we can manufacture items in higher volumes and at lower costs. This savings helps to create jobs for the severely handicapped without seriously jeopardizing the initial cost of the item.

Automation prepares those blind persons with high potential with top skills in operating modern machinery used in competitive industry. At the same time it provides a wide range of simple jobs for those individuals who have various handicaps in addition to blindness. A case study shows how automation helps to make employment of multiply handicapped persons possible.

Randy M. is thirty years old. Until one year ago, Randy spent his days playing with tinker toys in the home of his parents. A combination of blindness and near total deafness made Randy's future seem dim. After a period of evaluation and sub-

sequent training at the Dallas Lighthouse Vocational Training Center, Randy was placed in a job made possible by the plastic injection molding machines used at the Lighthouse Industrial Center. Machines molding two parts of a plastic fly-swatter provided the job of assembling the two sections. Randy soon mastered this simple task. The machines making the parts of the fly-swatter and other plastic products run from 16 to 18 hours daily. Such long runs build stockpiles of parts for a variety of assembly tasks. A month ago, Randy, who is paid on a piece rate, made the highest wage of the blind employees. Today the Lighthouse employs six deaf-blind persons as well as many other multiply handicapped blind people. Without automation and the jobs automation provides, these individuals would never have had a chance.

#### **Positive Changes**

NAC has helped the Dallas Lighthouse in many ways. Its policy of suggestions and encouragement for improvements has resulted in positive changes.

Some changes are small, such as better designed work tables. There have also been major revisions of policies and procedures, such as granting longer vacations and sick leave and giving a greater voice in management to the employees.

Application of standards makes an agency more aware of its responsibility to the community, but it does not necessarily make the agency. It does, however, provide the necessary guidelines for strengthening areas of weakness. Application of the self-study has helped our agency and staff to strive toward the stringent minimum standards. Each of us recognizes that the value of accreditation lies primarily in its continuing process of review and improvement.

Thanks to constant upgrading of our services and programs and the help of the State Commission for the Blind in job placement, people who are blind now receive sound vocational training and are eventually placed in competitive industry. This outside placement of persons with high potential makes a place for the multiply handicapped persons in the sheltered workshop. Application of standards has helped to make a place for those persons who have historically been denied any opportunity for gainful employment. People who have had no hope for dignity and independence now have it.

#### **Conclusion**

For many years, professionals serving the blind have wanted standards in this country. Today we have standards. These standards insure that blind persons receive the best services possible.

Agencies and workshops serving the blind have a responsibility to be attuned to the times. We must demonstrate that we are progressive and utilize all the knowledge, techniques, and methods available in our respective activities serving the blind. The very least we can do is to show a willingness to be open-minded, to investigate new and better ways of doing things, and to set goals which reflect the high degree of confidence our communities have placed in us.

*Mr. Scott is the executive director of the Dallas Lighthouse for the Blind, Texas. This paper is based on a speech delivered at the biennial meeting of the American Association of Workers for the Blind, July 20-23, 1975.*

### **Report on the Third Louisville Conference on Rate-Controlled Speech**

#### **Emerson Foulke, Ph.D.**

The Third Louisville Conference on Rate-Controlled Speech was held November 4-5, 1975. It was organized by the Perceptual Alternatives Laboratory, a unit of the Institute for Advanced Studies at the University of Louisville. Financial support for the conference was provided by a grant of \$3,000 from the American Foundation for the Blind.

The conference program included 24 reports of research and two major addresses. One address was given by Dr. Emerson Foulke, director of the Perceptual Alternatives Laboratory, who discussed current developments in time compression technology. The other address was given by Dr. Thomas G. Sticht, senior staff scientist at the Western Division, Human Research Organization (HumRRO), Monterey, California, who discussed factors effecting the acquisition of literacy by children and adults.

There were three sessions of research reports. The first session devoted to technical reports, was chaired by Dr. Daniel Beasley, Department of Audiology and Speech Sciences, Michigan State University. Dr. Lawson Hughes, Audio-Visual Department, Indiana University, was the chairman of the second session, which was devoted to reports of basic research. This session included reports of experiments in which time compression was the independent variable of primary interest and intelligibility or comprehension was the dependent variable of primary interest; experiments concerning the effects of several independent variables on the relationship between time compression and intelligibility or comprehension; and experiments in which the primary interest was the observation of dependent variables other than intelligibility or comprehension. Mr. Charles Meadows, director, Foreign Language and Special Learning Laboratories, Morehouse College, concluded this session with a discussion of the requirements for a theory capable of accounting for the comprehension of time-compressed speech. The third session was devoted to reports of applied research. Its chairman was Dr. Norman Lass, Speech and Hearing Sciences Laboratory, School of Medicine, West Virginia University. This session included reports of the effectiveness of time-compressed speech for different



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populations, reports of its use in audiotutorial instruction, reports of studies to determine the word rate preferred by listeners, and reports of clinical applications of time-compressed and expanded speech. It would be difficult to summarize succinctly a program with such diversity of content. However, taken together, the results reported at the conference clearly imply one general conclusion. Practical benefits can be realized in both the educational and clinical setting by taking advantage of the ability to vary the word rate of recorded speech.

Another important part of the conference program was the exhibition of equipment and materials relating to rate-controlled recorded speech. There were seven manufacturers of speech compressors, one developer of speech compression electronics, a publisher of compressed speech recordings, and the publisher of an anthology of research reports on time-compressed and time-expanded speech. An important generalization for the future development of rate-controlled recorded speech is permitted by the variety of equipment exhibited at the conference. Speech compressors are now available that are satisfactory in terms of both signal quality and ease of operation. They are now so inexpensive that serious consideration can be given to practical applications on a large scale. Before long, speech compressors will be available at a price so low that anyone who reads by listening and who wants to explore the potential benefits of time-compressed speech will be able to afford the equipment he needs to do so.

*Dr. Foulke is the director of the Perceptual Alternatives Laboratory, University of Louisville, Kentucky.*

### Meeting the Needs of Older Blind Adults: A Method of Accountability

**Ann Barber, M.S.W.**

In preparing this paper on meeting the needs of older blind adults and a method of accountability, I once again came face-to-face with one of the common criticisms of the social work profession—that it is more "talk" than "do." Many people in the field outline the problems in service delivery and speak out for the need for a means of accountability, but written material on the possible solutions or methods remains difficult to find. We are quickly heading towards the day of reckoning and we must be prepared for it.

Leslie Clark has observed that "... we have yet to create those rational structures to monitor and to assess the results of innovative change, both technical and personal, that we seek to accomplish ... And yet, without some changes in the delivery of services and the structures meant to serve this end, how can the blindness system ever hope to cope with the onslaught of the silent population ...?" (*New Outlook for the Blind*, February, 1975).

Which are the organizations attempting to provide the directions? The National Accreditation Council, through its setting of agency performance standards, is working towards accountability. So is the United Way of America with its Services Identification System, which has been adopted by the Community Services for the Blind of Seattle. Computers have gained recognition as one method of dealing with this problem. However, the role of computers has mainly been viewed as a means for

evaluating particular data. They have yet to function as an integral part of an on-going program of service delivery.

#### Defining Needs and Goals

The most frequent description of accountability is that of the worker to the agency. To begin at the level of worker is, in my opinion, inappropriate. We must begin with the client himself. To serve the client and his or her particular needs provides the very reason for our existence and defines the roles of both agencies and professionals. The process of defining need and effecting goals is our fundamental responsibility as social workers, but the needs must be those of our clients, not those we *think* our clients have.

This paper will attempt to outline a client-centered alternative for providing efficient, quality service geared to individual problems and their solutions. Although I shall concentrate on the delivery of services to the older blind adult, this concept can be designed to apply to any blind person of any age.

Older people comprise the majority of the blind population. At the same time, however, they are the least understood and studied segment of the population. They are also the segment for whom the fewest services are provided. As their numbers increase, so also does their need for political expression. The current movement of senior citizen action groups, such as the Gray Panthers and the National Council of Senior Citizens are demanding that society no longer brush aside older adults or consider them low priority.

Professionals in the human services are being called upon to confront the realities



of these older people. As social workers, on the main line, as it were, of client service, our responsibilities are primarily those of support and of problem-solving. These can involve a variety of functions, including applying for Supplemental Security Income, tracking down the cause of a check delay, housing relocation, finding home help and medical services, or locating avenues for socialization and leisure-time activities. These, however, are not enough. We must include in our roster of services the psycho-emotional and social supports and resources that are particular to blindness and aging.

How to put together the wide range of needs and to organize a plan of attack is both our challenge and dilemma. How do we assess *all* of a person's needs and investigate every possible resource for their solution? And, how do agencies assess their efficiency and effectiveness in providing top-quality service?

We must begin with the desired outcome or goal. For most older blind people, continued independence becomes an essential concern. This independence may be threatened due to the loss of central family and of occupation, deteriorating health and vision, diminished income, and fewer meaningful interpersonal relationships. Combined with this may be the sense of helplessness and uselessness which threatens their self-esteem and self-confidence.

To understand what an older visually handicapped individual defines as his or her independence, we must first learn what impediments block the attainment of this desired end. The most effective method is to uncover, as best we can, the many tangents of their lives and their individual needs. The basic needs of elderly blind people can be organized into four major areas: health; social functioning—both family and friends; community relationships; and personal attitudes. Each of these encompasses more specific problems. For example, health should include regular medical care, medications, diet, prostheses, and physical functioning, such as bathing, dressing, etc.

### Need Inventory

A most helpful device determining individual needs is a comprehensive questionnaire, with its items directly related to the potential problems of this group. The questionnaire would generate a "Need Inventory" to cover the four areas. The client will, in effect, perform his own evaluation, and this information provides the worker with the framework for service delivery. By posing organized and focused questions in all areas, we can insure that no important information is overlooked. At the same time, the inter-relationship of the various needs will surface readily. Any persistent problem will become apparent. For example, transportation may prove to be the principal reason for a client having no regular medical care, fewer friends, or being unable to attend senior citizen programs.

The questionnaire could include such questions as: 1) Health—Do you receive

regular medical care? Do you have transportation to medical appointments? Can you give yourself medications? Can you use your prosthesis successfully? 2) Social Functioning—Do you participate in making family decisions? Do you have friends? If no, why? Have they moved away, died, left when blindness came, are disabled themselves, other? Would you like to make new friends? 3) Community Relationships—Do you stay at home more than you would want? Would you like to have more activities outside of your home? 4) Personal Functioning—Do you consider yourself old? Do you and your family talk about your blindness?

One interview with a questionnaire can set the stage for services. The Need Inventory will generate possible service alternatives.

In order to do an effective job, we must not exclude any of the resources available to us. Each problem calls forth a variety of objectives, or services. For instance, if the client feels his family is too protective, the worker can attack the problem from a number of angles: Referral to community recreation programs, volunteer assistance, or volunteer jobs; providing transportation; recommending social work counseling (in-agency) for the individual, group or family; inviting family to observe rehabilitation instruction; or social work home visit. Each avenue of service can be explored with the client in order to set priorities.

As objectives are met, the inventory of needs will diminish, leaving only unmet areas for further work. The more needs met, the closer the client comes to achieving his or her independence. The strength of this system of accountability lies in the careful structuring of the questionnaire, of the Need Inventory, and of the objectives. Thus, the worker can monitor and evaluate the success made in helping the client to meet his or her goal. This ready reference functions also as a progress report of a worker's activities for use by both supervisor and agency.

To assess whether or not a client has reached the desired aim, the agency can re-administer the questionnaire at the termination of service delivery or at any time thereafter. The results can then be compared to the original answers.

This method of accountability can make significant strides in determining what *is* independence to older blind adults. Once we know this, we can determine what needs can and cannot be met, which have priority, what services are successful, and what programs should be deleted or modified for input of new and more effective strategies.

Social workers and agencies for the blind must be accountable first and foremost to their clients. With a pre-determined service structure, this accountability can become a reality.

*Ms. Barber is director of community services at the Center for Independent Living, New York City. This paper is based on a speech delivered at the biennial meeting of the American Association of Workers for the Blind, Atlanta, July 20-23, 1975.*

## Editors' Choice

### Science Meets Style: Bridging The Two Cultures

By Martin Robbins

Students of writing have often approached "style" as a mystery better admired than analyzed, but some Harvard science majors have found that a computational analysis of a writer's style both increased their admiration for good writing and their skill and confidence in making stylistic choices.

From the first afternoon of an expository writing course, during the fall and spring semesters of 1974-1975, these students in physics, astronomy, math, biology, and pre-med programs were challenged to analyze the style as well as the content of writing on science. As their first class assignment, they were asked to write a "short essay for the general reader," commenting on the quality of the insights and the style of "ancient scientific postulates recently discovered in a supposed archaeological find." These postulates were actually excerpts from Lucretius' Latin poem, *On the Nature of the Universe* (in R. E. Latham's translation). Only one student in both semesters knew that it was Lucretius. But all the students were fascinated that the postulates of Democritus and Epicurus, which Lucretius' poem preserves, had included the conservation of energy and mass, gravity, atomic theory and interparticle forces. Their writing, however, did not clarify generalizations such as "this material offers penetrating insights." Only one or two commented on Lucretius' style, as exhibited in such phrases as "The atoms themselves cannot be swamped by any force." What the students didn't realize was that Lucretius's poetic style in itself expressed the basic weakness of the content of ancient science, its lack of precise measurement.

The excerpts from Lucretius, and the texts, W. E. K. Middleton's *The Scientific Revolution* and Loren Eiseley's *The Firmament of Time*, showed the students that they, too, "stood on the shoulders of giants," giants who expressed themselves simply and clearly.





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### Students' First Papers

The first papers that the students did outside class on "My Best Discovery in Science" exhibited fewer "penetrating insights" than grandiose tendencies. For example: "The purpose of this paper is to relate a rather major personal discussion about the nature of science;" or, "The rediscovery of essential scientific concepts can be both stimulating and rewarding." It is always hard to convince freshmen that their writing is less readable when it is filled with "fancy words," to quote Strunk and White's *The Elements of Style*. This was particularly so for students whose writing echoed the overly formal tone of much writing on science. But *Certain Notes of Instruction*, written by George Gascoigne in 1575, convinced them "the more mono-syllables that you use the truer Englishman you shall seem and the less you shall smell of the inkhorn."

### Fire, Flame, and Conflagration

Learning the makeup of their language showed the students that "the most ancient English words are of one syllable." It also showed them how word choice controls tone, from the direct "fire" of Anglo-Saxon to the more literary "flame" in French and the formal "conflagration" in Latin. Presenting introductory material on the English language and on the Indo-European families of languages is not new and studying word origins has always led students to be more precise. What was new and particularly challenging to these science majors was doing an analysis of style where they computed percentages of usage. Students in previously-taught literary essay or creative writing courses had complained about the 30 to 40 hours of computation needed to qualify descriptions such as "seldom, rarely" (about 5 percent, 1 percent) or "often, usually" (say, 75 percent, 90 percent). But the science majors got out their clipboards, one page to detail each structure or usage, and their pocket calculators. Any resistance to the assignment, which was spread over five weeks, was diminished by explaining that the style analysis is similar to first-year work in a traditional art school: use the work of the masters for models. The "masters" they chose included Einstein, Oppenheimer, Gardner, Hoyle, Bronowski, Asimov, Russell, Whitehead, Carson, and Krutch. Computing the kinds of sentence structure and word usage used led to generalizations on pace and tone. A predominantly coordinate sentence structure reads faster than a subordinate one. Jacob Bronowski's sentences in a representative sample of *The Ascent of Man* were 52 percent simple, 26 percent compound, 13 percent complex, and 9 percent compound-complex. In contrast with Bronowski's sentences, which were 80 percent coordinate, Bertrand Russell's sentences in "Characteristics of Scientific Method" were 80 percent subordinate. As two excellent student essays commented: "One quarter of Bronowski's sentences contain subordinate clauses, which provide pleasant variety"; and "Short sentences stand out in Russell's writing be-



cause they are so uncommon." Bronowski's tone was informal, and he "writes with common English words." The tone of Russell's essay was "almost always formal and sometimes stiff . . . whenever he has a choice Russell usually picks the more formal word like 'adumbrates.' Latin and French-based words make up nearly two-thirds of the article." This formal word-level was the exception. In an essay from *Out of My Later Years*, Einstein's words were 67 percent from the Anglo-Saxon, with the rest from Greek and Latin. Computation can be overdone. The student who reported an average of 20.5 words per sentence in Einstein's essay was received with smiles when he reported that there were 1.74 syllables per word. But the class used the two sessions of the "style seminar" to compare notes and questions in informal reports that also covered paragraph strategies, transitions, rhetorical devices, figures of speech and amount of adjectives. It was encouraging to come into the room during a class break and find the students heatedly discussing style, not content.

## Style Analysis

What did they really learn from such a detailed analysis of style? First, they all admitted in class that it forced them to review and to use their knowledge of grammar. Without exact definitions, held clearly in mind, the computation would have failed. Second, they realized that each time they re-read the representative sample to compute a particular usage, they got closer to absorbing the gestures of that writer's style. To prove this, they did imitations using an Aesop fable for a story, since making one up distracts the student from doing a spontaneous imitation. In class, after three or four "reports" had described a style, the imitations were

shuffled and read. "The remarkable ability of the fox to survive under adverse circumstances is the result of not so much his physical strength, which is, practically speaking, almost negligible . . ."—Russell or Bronowski? After the style analysis and seminar, which occurred midway in the course, the students wrote papers on what they had learned about style in general, and their own writing in particular. The general observations included comments such as these: "I am more aware of the precision involved in choosing just the right phrase or sentence for a given audience or type of writing;" or, "I began the style analysis with the assumption that style is something one feels . . . but now I believe that logically developed paragraphs and precise vocabulary reflect clear thinking and acute observation." What these science majors observed about their own writing was equally useful: "There are patterns that emerge in my writing, just as there were in the essay that I studied;" and, "I never really understood what controlled the tone of my own writing . . . but now I am wary of heavy subordination, and the use of overly-impressive words."

## Translations

The students had eagerly found bad science writing in textbooks and magazines before doing the style analysis. After completing it, they had the confidence to criticize their own work. In the second week they had written papers on a process—which in their case might have been a description of making a protein, not a cake. The re-writing of these process papers yielded some instructive "translations" from jargon into English. "Postdating the basic phase" became "is older than." "Produces coordinated motor-output" became "coordinate movements." The prize-winning glob of jargon was: "Exercise extreme caution so as not to

drive the amplifier beyond the prescribed levels, as this act will result in the heating of the plates of the tubes to virtual incandescence and undesirably alter their operating characteristics." Translated, this meant: "Overloading the amplifier ruins the tubes." These revisions were read as part of the weekly post-mortem where students faced their "deathless prose"—and each other—in tables arranged in a square. Because it was the week after the style project was completed, all the students appreciated both the content and the style of, "At this point, one would normally terminate the experiment," and its translation, "Here, you would usually give up."

There were two additional assignments that used the approach of style analysis—an essay on current trends in science writing and an anthology of good science writing. This final project helped shake them loose from the overly-formal tendencies of the average term paper although footnoting the basic sources and a bibliography were required. Instead of a term paper, they wrote a three to four thousand word critical introduction to the anthology. The anthologies consisted of four or five articles by various writers on a general topic, or a group of essays by one writer. Most were about either our increasing knowledge of the cosmos or the growing responsibilities of science on this planet. Although the introductions did not require any computational analysis of style, the students found it easy to make observations on the pace and tone of the various essays. The style of their introductions tended to be simple, direct, and effective. They had become aware of how much a writer's style is part of what he says.

*Reprinted from The Key Reporter, Volume 40, Number 4, Summer 1975, by permission of the United Chapters of Phi Beta Kappa.*

# Current Literature

*A report of significant new additions to the M. C. Migel Memorial Library of the American Foundation for the Blind, prepared by Elaine M. Siegel, librarian. These materials may be borrowed from the library.*

## Art

**Arts and the Handicapped; An Issue of Access.** Educational Facilities Laboratory (850 Third Avenue, New York, New York 10022), 1975, 79p. \$4.00. Report of joint study by the National Endowment for the Arts and the Educational Facilities Laboratory. A chapter entitled "Art Not By Eye Alone" highlights the "touch and feel" galleries instituted by art centers and museums to make art accessible to the visually handicapped population. Museums sponsoring temporary or permanent tactile exhibitions for the blind are listed, and several are described. The

trend toward incorporating facilities for the handicapped into regular museum programs is also noted, with examples.

**The Children's Experimental Workshop: A Creative Arts Experience for the Visually Handicapped,** by Wendy M. Ross. *Parks & Recreation* (National Recreation and Parks Association, 1601 North Kent Street, Arlington, Virginia 22209), Vol. 10, No. 9, September 1975, pp. 29-31, 60-61. The author is a National Parks Service artist and director of the Children's Experimental Workshop, Glen Echo Park, Maryland. Initiated in March 1974, the program included 14 students, aged 14-16, from a school for the visually handicapped, and offered an active learning environment for artistic endeavors and social interaction. Work with clay and in dramatic expression predominated.

## Bibliography

**An Annotated Bibliography of Books and Articles on the Visually Handicapped in the School of Education.** Research Centre for the Education of the Visually Handicapped (University of Birmingham, School of Education, 50 Wellington Road, Edgbaston,

Birmingham B15 2EP, England), 1974, 45p. Current holdings on the visually handicapped in the Library of Birmingham University's School of Education. Materials pertain primarily to the educational, psychological, and rehabilitation needs of the visually handicapped, rather than to the medical and ophthalmological aspects of vision impairment. Entries in this bibliography are arranged alphabetically.

## Biography

**A Teacher Moving Up.** *Dialogue* (Dialogue Publications, Inc., Berwyn, Illinois 60402), Vol. 14, No. 2, Summer 1975, pp. 85-87. Interview with Bill Johnson, blind college teacher and chairman of the speech department, DuPage College, Glen Ellyn, Illinois. Mr. Johnson describes his "graduation" from high school to college teaching, with special attention to the devices and methods he utilizes in presenting class material, grading papers, establishing discipline, and encouraging class participation. He advises that other blind individuals aspiring to teaching careers maintain a high level of professional competency, seek a broad range of experiences and activities,



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learn to understand the attitudes of the public and not indulge in self-pity, do an outstanding job in student teaching, including involvement in all aspects of the school program, and obtain a master's degree.

## Braille Music Notation

**Music Reading for the Sightless: Braille Notation**, by Doris G. Herlein. *Music Educators Journal* (Music Educators National Conference, Center for Educational Association, 1902 Association Drive, Reston, Virginia 22091), Vol. 62, September 1975, pp. 42-45. The author suggests that prerequisites for learning music braille are a reading knowledge of literary braille and an introduction to music theory and terminology, harmonic structure, and the fundamentals of piano. She explains how such elements as sharps and flats, note letter names, note values, and chords are denoted in braille music notation.

## Deaf-Blind

**A Vision Guide for Teachers of Deaf-Blind Children**, by Marvin Efron and Beth Reilly DuBoff. Special Education Instructional Materials Developmental Center (Winston-Salem, North Carolina), 1975, 62p. Designed to provide teachers of deaf-blind children with a concise handbook dealing with visual functioning and its evaluation, and techniques and materials for improving visual skills. Also included are a chronological visual developmental scale, a glossary of terms relating to the eye and vision, and a guide for assessing sensation, visual-motor function, and visual perception.

## Demography

**Childhood Blindness in Lebanon**, by Sahag A. Baghdassarian and Khalid F. Tabbara. *American Journal of Ophthalmology* (Ophthalmic Publishing Company, 233 East Ontario Street, Chicago, Illinois 60611), Vol. 79, No. 5, May 1975, pp. 827-830. Study of 203 students, aged 6-20, in Lebanon's three schools for the blind between 1970 and 1973. It was discovered that a preponderance (77 percent) of the cases of childhood blindness were genetically determined, due largely to the high percentage of consanguineous marriages in the country. Nutritional and infectious causes were less frequent, and acquired blindness was most commonly the result of accidents.

## Fiction

**Streets of Gold**, by Evan Hunter. Harper & Row, Publishers, Inc. (10 East 53rd Street, New York, New York 10022), 1974, 378p. \$8.95. Set in New York City, this novel is told in the first person by a blind jazz musician. Stereotypes relating to the City's many ethnic groups, as well as the blind, are depicted throughout the work.

## Orientation & Mobility

**In Winter and Rough Weather**, by B. T. Kimbrough. *Dialogue* (See Address Above), Vol.

14, No. 4, Winter 1975, pp. 58-59. Excerpts from interviews with four blind persons, all experienced travelers, attending the National Conference on Travel in Adverse Weather, sponsored by the American Foundation for the Blind in Minneapolis, Minnesota in February, 1975. The panelists recounted difficulties encountered in ice storms, snowstorms, windstorms, and sub-freezing temperatures. Recommendations for coping with these situations were offered—from accepting assistance from sighted travelers, to wearing boots, hats, and gloves of the sort that obscure audio and tactual clues as little as possible. It was also suggested that mobility instruction routinely include training under adverse weather conditions, with some time devoted to use of an umbrella and its alteration of sound patterns.

## Personal Management

**The Blind Nursing Home Patient: A Question of Real Kindness**, by Claudia Crispin Pattison. *The Rehabilitation Teacher* (National Braille Press, Inc., 88 St. Stephen Street, Boston, Massachusetts 02115), Vol. 7, No. 5, Fall 1975, pp. 7-15. The author, a former mobility instructor and nurse's aide, discusses the role of the mobility instructor in providing training in use of sighted guide technique, room familiarization, and independent travel skills to the aged blind person assigned to a nursing home. She stresses the necessity of offering the patient these tools of self-sufficiency and self-esteem, and the concomitant benefit of relieving the burden on nursing home personnel.

**Independence for the Visually Impaired Insulin Taking Diabetic**, by Virginia A. Boyles. *The Rehabilitation Teacher* (See Address Above), Vol. 7, No. 6, Winter 1975, pp. 1-7. The author, a rehabilitation teacher and former assistant and laboratory technician with a diabetes specialist, describes seven methods for measuring insulin without sight. She compares the devices according to whether they are accurate within one unit, available in U100 strength, simple to teach, cost less than \$10, and can be used to combine insulins or with disposable syringes. Several sample situations are included to illustrate choice of appropriate device.

## Sensory Aids

**British Technical School Students Apply Unique Skills in Community Service Projects**, by Alec Dickson. *Synergist* (ACTION'S National Student Volunteer Program, 806 Connecticut Avenue, N.W., Washington, D.C. 20525), Vol. 3, No. 3, Winter 1975, pp. 37-41. Report on a variety of volunteer projects in Great Britain which have resulted in the creation of educational and recreational devices for the blind. School students and young industrial apprentices have completed such aids as libraries of tactile street maps and apparatus to demonstrate osmosis and rate of water loss by plants, and have provided cricket instruction using a "singing ball."

# Publications of Note

*A classified listing of books, articles, directories, pamphlets, and other material of interest to the readers of the New Outlook for the Blind, prepared by the editors. Please write to the source listed in each entry if copies or more information is desired; the materials are not available from the New Outlook or the American Foundation for the Blind.*

## Aging

**Women in Studies of Aging: A Critique and Suggestion**, by Diane Beeson. *Social Problems* (114 Rockwell Hall, State University College, 1300 Elmwood Avenue, Buffalo, N.Y. 14222), October 1975, Vol. 23, pp. 52-59. Gerontologists, like other social scientists, have concentrated their studies primarily on male subjects. Social theories, though not supported by empirical data, have maintained that aging is a smoother process for women than for men. The author takes exception to this viewpoint and supports her theory with demographic and statistical data as well as current information from popular women's publications.

**The Family Agency and the Kinship System of the Elderly**, by Anne O. Freed. *Social Casework* (44 E. 23rd Street, New York, N.Y. 10010), December 1975, Vol. 56, No. 10, pp. 579-586. The author maintains that the role of the family agency is to support the kinship system of the aging person and his relatives by informing them of available resources. In cases where there are no relatives, or the kinship system has broken down, then the family agency must share the function of the relatives or assume that role itself.

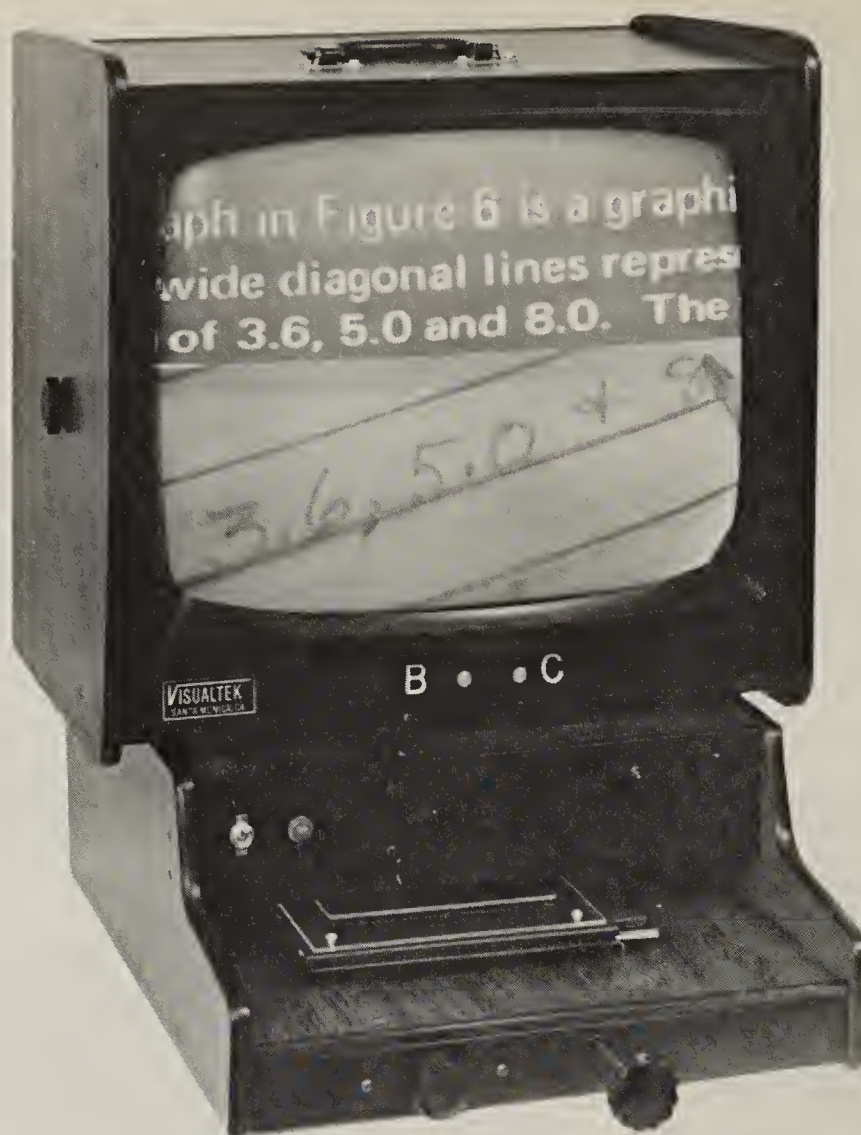
## Career Education

**How to Use the Occupational Outlook Handbook**. *Occupational Outlook Quarterly* (Occupational Outlook Service, Bureau of Labor Statistics, Washington, D.C. 20212), Winter 1975, Vol. 19, No. 4, pp. 17-22. The *Occupational Outlook Handbook* is a standard reference book for guidance and career counselors. It lists more than 850 occupations and pertinent data about them, including a description of the work, qualifications, salary range, and how quickly (or slowly) the field is growing.

## Development

**Conservation by the Congenitally Blind**, by R. F. Cromer. *British Journal of Psychology*,





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May 1973, Vol. 64, No. 2, pp. 241-250. Study of conservation of amount, using specially-designed wire cylinders, in three groups of 12 5.7 to 9.6 year olds: congenitally blind subjects and two control groups of sighted subjects, one of which undertook the task blindfolded. No differences were found among the three groups on the age of attainment of conservation. However, the manner by which the blind processed the environment differed from the blindfolded sighted subjects, as evidenced in some of their non-conservation answers. The language of the blind did not differ from that of the sighted in describing the materials, but the language of the non-conserving subjects of all groups differed from that of the conserving subjects. The importance for several theoretical views on the attainment of conservation is discussed, and it is argued that the achievement of the beginning of operational thinking may be more a central developmental phenomenon than one based on specific sensory experience.

**Accelerated Acquisition of Classification Skills by Blind Children**, by J. Friedman and R. Pasnak. *Developmental Psychology*, November 1973, Vol. 9, No. 3, pp. 333-337. This study used a 120-problem learning set to teach simple classification skills to eight six-to-11 year-old blind children. Eight controls matched on age, IQ, sex, and degree and onset of blindness participated in general enrichment activities: modeling with clay, psychodrama, free play, individual tutoring, and learning to use the braille-writer and typewriter. All subjects were residents at a state school for the blind and had previously experienced rural or small-town environments. A significant interaction was observed between type of training and gains on a 48-problem classification test. There was an insignificant correlation between number of training sessions and classification gains and between sex and classification gains. Findings suggest that acquisition of Piagetian concepts may be meaningfully accelerated by training procedures in the case of children whose mental development is hindered by sensory deficits.

## Diabetes

**Various Parameters of Diabetic Retinopathy Among Clinic Populations**, by Robert Adler, Jeffrey Freedman, Narinder Kukar, and George M. Gombos. *Annals of Ophthalmology*, November 1975, Vol. 7, pp. 1447-1454. (Reprints available from Dr. Gombos, 450 Clarkson Avenue, Brooklyn, N.Y. 11203.) This study was conducted in a diabetic clinic at a county hospital to gain further information about diabetic retinopathy. Results indicated that diabetes is more common in women than men; diabetic retinopathy varies directly with the duration of diabetes; retinopathy occurs earlier with late onset of diabetes; and raised intraocular pressure does not seem to protect the eye against retinopathy. It was also found that the incidence of retinopathy is higher if hypertension is present.

## Employment

**Factory for the Handicapped**. *Rehabilitation World* (20 West 40th Street, New York,

N.Y. 10018), Vol. 2, No. 1, pp. 20, 40. Describes a toy factory in Peking run by blind and physically handicapped workers.

## Films

**La Vista de su Nino**. Texas Society for the Prevention of Blindness (P.O. Box 13400, Houston, Texas 77019), 16 mm, color, 10 min., \$100. A Spanish-language film designed to inform parents of the importance of good vision and eye care.

## Independent Living Skills

**Eating With a Spoon: How to Teach Your Multihandicapped Child**. National Center on Educational Media and Materials for the Handicapped (Publications Division, Ohio State University Press, 2070 Neil Avenue, Columbus, Ohio 43210), 1975. 59 p. \$3.00. The purpose of this book is to help parents teach their handicapped child to feed himself.

## Low Vision Aids

**Tastlesen des Japanischen mit Optacon**, by K. Homma. *Bulletin of the Tokyo Metropolitan Rehabilitation Center for the Physically and Mentally Handicapped*, 1975, pp. 27-37. The goal of this research was to discover whether using both hands one can read Japanese with the Optacon and to determine whether one can learn to read both kana and kanji characters in Japanese with the Optacon.

## Medicine

**Child Health Encyclopedia: The Complete Guide for Parents**, by Richard I. Feinbloom, M.D. and the Boston Children's Medical Center. Delacorte Press (245 East 47th Street, New York, N.Y. 10017), 1975. 561 p. \$15.00. A comprehensive directory of information about diseases and disorders affecting children.

**Measures of Perceptions Regarding Health Status: Preliminary Findings**, by J. E. Ware, Jr., W. R. Wright, and M. K. Snyder. Southern Illinois University, School of Medicine, Carbondale, Illinois: 1974. 96 p. (MHC-74-13) \*PB-242 726/8WJ, Paper Copy \$4.75/Microfiche \$2.25. A scale to measure perceptions regarding health status (current health, prior health, and resistance to illness) and response to health state (lack of health anxiety and acceptance of the patient role) was administered to a sample of adults living in Illinois. Factor analytic methods were used to study the interrelationships among scale items. Scale items that met factor analytic criteria were used to compute score estimates for five health concepts. Reliability of these estimates was studied using internal consistency and test-retest methods. Relationships among the five concepts were studied using score estimates derived from both simple and complex methods. A higher-order factor analytic study of two hypothesized common dimensions was conducted. The validity of the five measures was studied in relation to selected health outcomes and socio-demographic variables of interest. Scale re-

visions designed to improve the reliability and validity of index scores were summarized.

## Motor Skills

**Human Perceptual-Motor Performance**, by R. W. Pew. Michigan University, Human Performance Center, Ann Arbor, Michigan: 1974. 83 p. (010588-20-B, TR-48, AFOSR-TR-75-0907) \*AD-A012 097/2WJ, Paper Copy \$4.75/Microfiche \$2.25. This paper presents a tutorial review of the current status of work on perceptual motor skills from the joint perspectives of information processing and feedback control. The organizing theme for the discussion is a multi-level conception of motor control involving (1) an elementary error-correction system; (2) higher level feedback and control functions describing how man responds to the predictable characteristics of input signals, and (3) a schema based memory and response execution system for describing voluntary movement capacities. Elementary concepts of feedback control are introduced together with a discussion of the role of feedback on performance, in tracking, and in voluntary movement.

## Periodicals

**Journal of Community Health**. Human Sciences Press (72 Fifth Avenue, New York, N.Y. 10011), quarterly. Institutions: \$35 per year; individuals \$9.95 per year. The official journal of the Association of Teachers of Preventive Medicine, this periodical covers such topics as the practice and teaching of community health, the delivery of health care services, and preventive medicine.

## Professional Education

**College Programs for Paraprofessionals**, compiled by New Human Services Institute. Human Sciences Press (72 Fifth Avenue, New York, N.Y. 10011), 1975. 135 p. \$9.95. Contains nearly one thousand degree-granting programs for paraprofessionals in the human services. Entries are arranged by field of study, the name of the training institution, and by state.

## Regeneration of Organs/Tissues

**Neurogenesis and Neural Regeneration in Visual Systems of Fish and Amphibia 1971-1974**. Brain Information Service, BRI Publications Office, UCLA Center for the Health Sciences, Los Angeles, California. 19 p. \$2.00. This annotated bibliography lists reports of electrophysiological and neuroanatomical work pertinent to questions about neurospecificity. It is arranged according to methodology, and within that category, by experimental animal, with a separate section for books and review articles. A brief abstract is provided with each citation.

## Rehabilitation

**Communications in Rehabilitation**, edited by Susan R. Hammerman. Rehabilitation In-



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ternational (219 East 44th Street, New York, N.Y. 10017), 1974. 158 p. \$1.50. A report on the International Experts Meeting on Communications in Rehabilitation held in Niedersseßmar, Germany, December 1972. Included in the report is an analysis of the various categories of communication tools, their uses, advantages, and disadvantages; the criteria for the selection of communication techniques; and special recommendations on communication needs in developing countries.

## Social Work

**Information Systems for Social Welfare: Educational Imperatives**, by Claire M. Anderson. *Journal of Education for Social Work* (Council on Social Work Education, 345 East 46th Street, New York, N.Y. 10017), Fall 1975, Vol. 11, No. 3, pp. 16-21. As information systems become an increasingly constant feature of social work agencies, responsible participation as users of information and suppliers of basic data will be required of all persons in the field. Therefore it is necessary for schools of social work to prepare students to assume this responsibility. This article deals with the content, teaching, and student learning involved in an introductory course for information systems for social welfare.

**Accuracy in Assessment: Does Training Help?**, by Wallace J. Gingerich, Ronald A. Feldman, and John S. Wodarski. *Social Work* (2 Park Avenue, New York, N.Y. 10016), January 1976, Vol. 21, No. 1, pp. 40-48. Does professional social work training improve the accuracy of client behavioral assessment, or does it contribute to the development of stereotypes that bias the assessment? The results of this study indicate that traditional social work training tends to decrease the accuracy of behavioral assessment.

## Speech Analysis and Synthesis

**Speech Research: Status Report**. Haskins Laboratories, New Haven, Connecticut. 1975, 235 p. A report on the status and progress of studies on the nature of speech, instrumentation for its investigation, and practical applications.

**Auditory-Visual Perception of Speech**, by N.P. Erber. *Journal of Speech and Hearing Disorders*, November 1975, Vol. 40, No. 4, pp. 481-492. Hearing-impaired persons usually perceive speech by watching the face of the talker while listening through a hearing aid. Normal-hearing persons also tend to rely on visual cues, especially when they communicate in noisy or reverberant environments. Numerous clinical and laboratory studies on the auditory-visual performance of normal-hearing and hearing-impaired children and adults demonstrate that combined auditory-visual perception is superior to perception through either audition or vision alone. This paper reviews these studies and provides a rationale for routine evaluation of auditory-visual speech perception in audiology clinics.

## Stereotyped Behavior

**Visual Defect Does Not Produce Stereotyped Movements**, by G. Berkson. *American Journal of Mental Deficiency*, July 1973, Vol. 78, No. 1, pp. 89-94. Fourteen crab-eating macaques (*Macaca fascicularis*) with a severe visual acuity deficit were reared in social isolation. Subjects developed abnormal stereotyped movements, e.g. thumbsucking and body rocking, but at no greater rate than sighted isolation-reared controls. A consideration of the recent literature suggests that specific deficits in social stimulation are implicated in the development of various stereotyped acts.

## Transportation

**Getting There**, by Alice E. Kidder. *Voluntary Action Leadership* (National Center for Voluntary Action, 1785 Massachusetts Avenue, N.W., Washington, D.C. 20036), Fall 1975, pp. 23-25. People who do not own automobiles are dependent for their mobility on other drivers and public transportation. For the residents of rural and small town areas where there is limited bus service this can create serious problems. The author discusses the transportation alternatives that can be set up by human service agencies to aid their clients.

## Vision

**Effects of Colored Lenses on Visual Performance**, by R. S. Hart. Multi-Tech Associates, Dayton, Ohio, 1974, 23 p. (AMRL-TR-74-38) \*AD-A011 572/5WJ, Paper Copy \$3.25/Microfiche \$2.25. This study compares operator target detection performance while wearing red, yellow and gray sunglass lenses and unaided viewing. A research task was performed outdoors using survival orange targets located at ranges of 1600 feet to 4500 feet from the subjects. No statistically significant performance differences were obtained although subjectively the operators preferred the yellow lenses over the gray sunglasses and unfiltered conditions.

## News in Brief

■ An international listing of schools for visually handicapped children is available from the American Foundation for Overseas Blind. Over 900 schools in 102 countries are listed. Copies may be obtained from Dr. Jeanne Kenmore, American Foundation for Overseas Blind, 22 West 17th Street, New York, N.Y. 10011.

■ A Lasker Award for Medical Research has been presented to Dr. Jules Stein, chairman of Research to Prevent Blindness. The \$10,000 prize was awarded to Dr. Stein for his support of research that has led to the development of several techniques to prevent blindness.

■ The U.S. Civil Service Commission has announced that the Professional and Administrative Career Examination (PACE) is now available in braille, large type, and cassette forms for visually impaired applicants. Special sample question booklets are also available for study prior to taking the test. For further information or PACE application forms, write to the U.S. Civil Service Commission, Bureau of Recruiting and Examining, Washington, D.C. 20715.

■ French author and philosopher Jean Paul Sartre, 70, has decided to limit his writing career because of progressive loss of vision and hemorrhaging in his left eye. He lost the sight in his right eye at the age of three. Sartre has ceased work on the fourth volume of his biography of Gustave Flaubert, the 19th century French poet and novelist. However, he does plan to continue working on a series of television programs about the first 75 years of the 20th century which he has been writing in collaboration with author Simone de Beauvoir.

■ Construction is currently underway in Washington, D.C. for a municipal recreation center designed specifically for the use of mentally and physically handicapped people. The center, which will be called the Joseph H. Cole Center after the director of the District of Columbia Department of Recreation, will include a day-care center, a miniature golf course, a swimming pool, an auditorium/gymnasium, arts and crafts shops, and an outdoor play and exploration area. The center is scheduled for completion by Fall, 1976.

■ Asthmatic children dependent on medication with corticosteroids should have their eyes examined by an ophthalmologist at least once a year, according to a report by the National Asthma Center. Long-term treatment with steroids has been associated with the formation of cataracts in a high percentage of asthmatic children.

■ Vending machines that dispense ballpoint pens made by blind workshop employees are being installed in New York's off-track betting parlors. The vending program is a joint effort of the New York State Commission for the Visually Handicapped and the Western Regional Off-Track Betting Corporation. The green and white pens bearing the OTB emblem will be sold for 25¢ each.

■ The Massachusetts College of Optometry's Division of Continuing Education (424 Beacon Street, Boston, Mass. 02115) has initiated a new policy which permits full-time optometric faculty members from any college of optometry in the United States or Canada to enroll in MCO continuing education courses for one-half of the regular tuition rate.

■ Blind musicians, 25 years of age and under, are invited to enter the Music Competition for Blind Artists, July 5-9, 1976, sponsored by Christian Education for the Blind. The event offers a scholarship award of \$2,000 and three cash awards in each of the two categories of performance, vocal soloist and instrumental soloist. For further information and application forms write,



Christian Education for the Blind, P.O. Box 6399, Fort Worth, Texas 76115.

■ A monthly literary series, called *Samisdat*, which includes short fiction, poetry and literary criticism, is available on cassette for blind readers from Gulf Audio Services (Box 488, Elfers, Florida 33531). To receive the series send a blank 90-minute cassette, a self-addressed return mailing container, and 25¢ for postage to Gulf Audio Services.

■ The Jean Riley Publishing Company, a non-profit publishing house, has recently been established to provide a larger market for handicapped writers. Short and long fiction and poetry will be considered for publication. For more information contact, The Jean Riley Publishing Company, 415 N. East Street, No. 214, Arlington, Texas 76012.

■ A small, hand-held electronic mobility aid which signals the presence of objects up to a distance of eight feet has been developed by the Blind Mobility Research Unit of the University of Nottingham, England. The device utilizes an eight-note scale with each note representing a 12-inch range, the lowest note signaling an object in the first 12-inch zone. Research is currently in progress to develop a tactual coding for deaf-blind persons.

■ In a paper presented to an orthopedist's congress in Munster, West Germany, in May, 1975, Dr. K. J. Munzenberg, of the Orthopaedisches Universitäts Klinik, West Germany, reported some interesting observations on the younger blind population. The young are now more actively participating in normal life in society than the older blind population did in their youth, and they show a straighter thoracic spine than their elders did at the same age. The earlier blindness occurred in an individual's life, the straighter his spine. Dr. Munzenberg hypothesizes that this difference stems from the "listening posture," head raised and tilted slightly backward. This is in sharp contrast to the normally sighted, or indeed even the visually impaired, who spend a fair part of their lives bent over horizontal working surfaces.

## APPOINTMENTS

■ Blind Industries and Services of Maryland: **Ralph W. Sanders**, executive vice-president.

■ Minneapolis Society for the Blind: **Clophas F. Bulleigh**, workshop director.

■ Pennsylvania Office for the Visually Handicapped: **Ralph E. Beistline**, commissioner.

## AWARDS

■ William Friedkin Scholars Award, Research to Prevent Blindness: **Deborah Pavan Langston, M.D.**, ophthalmologist, Harvard University.

■ Anne Sullivan Gold Medal Award: **Chan Poh-Lin**, deaf-blind teacher, Singapore School for the Blind.

## COMING EVENTS

### April

- 9-13 American Occupational Therapy Association, Mid-year Meeting, Atlanta.  
28-30 The President's Committee on Employment of the Handicapped, Annual Meeting, Washington, D.C.

### May

- 10-13 Radio Reading Services, Second Conference, Minneapolis, Minn.  
11-12 National Braille Association, Regional Meeting and Workshop, Boston.  
14-16 American Ophthalmological Society, Kilauea, Hawaii.  
16-20 American Federation of Labor and Congress of Industrial Organizations, 18th National Conference on Community Services, Washington, D.C.  
26-29 American Speech and Hearing Association, Western Regional Conference, Portland.

### June

- 13-16 National Conference on Social Welfare, 103rd Annual Forum, Washington, D.C.  
13-28 XIII World Rehabilitation Council, Tel Aviv, Israel.  
23-26 Alexander Graham Bell Association for the Deaf, Biennial Convention, Boston.  
26-July 1 American Medical Association, Annual Convention, Dallas.  
27-July 2 American Physical Therapy Association, New Orleans.  
28-July 2 American Home Economics Association, Annual Meeting, Minneapolis, Minn.

### July

- 5 National Federation of the Blind, Los Angeles.  
5 American Council of the Blind, Hot Springs, Ark.  
5 Association for the Education of the Visually Handicapped, Louisville, Ky.

### August

- 29-September 3 International Committee for Education of the Deaf-Blind, Sixth International Deaf-Blind Seminar, Sydney, Australia.

### October

- 6-10 American Academy of Ophthalmology and Otolaryngology, Las Vegas.  
11-15 American Occupational Therapy Association, Annual Meeting, San Francisco.  
15 White Cane Day.  
17-21 American Public Health Association, Annual Meeting, Miami Beach, Fla.  
17-22 National Recreation and Park Association, Boston.  
27-30 National Rehabilitation Association, Annual Conference, Hollywood, Fla.  
27-30 Western Regional Conference of the American Association of Workers for the Blind, Tucson, Arizona.

## November

- 19-23 American Speech and Hearing Association, Annual Convention, Houston.

### Intensive Behavior Modification Workshops:

May 5-8 Boston

May 17-21 Chicago

For information contact: Behavior Modification Technology, P.O. Box 597, Libertyville, Illinois 60048.

## Classified Listings

*Rates: Non-display—\$2.00 per line (minimum: \$10.00); Display \$13.00 per column inch (minimum: one inch). Anonymous, box-numbered ads are only accepted for personnel listings. Advertising is subject to editorial approval. A rate and information card is available on request. All correspondence should be directed to the Classified Advertising Department, New Outlook for the Blind, 15 West 16th Street, New York, N.Y. 10011.*

### PERSONNEL

#### SITUATIONS AVAILABLE

**POSITION:** Assistant professor or Faculty Assistant in Special Education. Primary experience in the area of physically-multiply handicapped. Graduate and undergraduate instruction in teaching sensory-multiply handicapped, physically-multiply handicapped, and coordination of the physically handicapped undergraduate level.

**CONTACT:** Dr. Larry Hapeman, Department of Special Education, Northern Illinois University, Graham Hall 225, DeKalb, Illinois 60115. Northern Illinois University is an equal opportunity employer.

**POSITION:** Executive for South Carolina School for the Deaf and the Blind. Authority and responsibilities comparable to a Superintendent in Administration of Education, Physical Plant, student activities of School; short and long-range planning; staffing and personnel relations; salary open (Approximately \$25,000); excellent fringe benefits. Graduate degrees and administrative experience will enhance application. Position to be filled by July 1, 1976.

**CONTACT:** L. L. Hyatt, Jr., Personnel Director, South Carolina School for Deaf and Blind, Spartanburg, South Carolina 29302. Equal Opportunity Employer.

### AIDS AND APPLIANCES

Map kits and Handbook—For details contact: Dr. G. A. James, Blind Mobility Research Unit, Department of Psychology, University of Nottingham, Nottingham NG7 2RD, United Kingdom.

New Talking Electronic Calculator—the SPEECH PLUS™ from TSI is now available. Verifies all keystrokes and answers with 24 words from earphone or self-contained speaker. It is hand-held, rechargeable, and functions include percent, square root, memory, and automatic constant for easy 1/x and x2 calculations. \$395.00 from either AFB or TSI. For more information contact: Telesensory Systems, Inc., 1889 Page Mill Road, Palo Alto, California 94304, (415) 49302626.





# OUTPUTS

SEQUENTIAL

PARALLEL

Fast

Medium

Slow

Zoltan  
Braille  
Emboss

Zinc  
Plates  
Stencils

Thermo-  
form

Braille  
Direct

MANUAL

## INPUTS

AUTOMATIC

Editing Facilities

None

Partial

Complete

Typist  
On-line

Typist  
Off-line

Existing  
Material

O.C.R.

All Students  
& employed  
persons  
material

Some school  
material

Some school  
& casual  
reading  
material

Casual  
reading  
material

# Outlook

“How a person sees himself is recognized as one of the primary determinants of how that person is likely to behave. By use of the label ‘blind’ for persons who have usable vision, we are actually saying to them ‘You must see yourself as a blind person.’

They therefore begin to view themselves as different people, and indeed we often say they are different people with the expectation that they will behave as different people. It is a well-known fact that people with residual vision often arouse irritation and annoyance in others, and even in those of us who consider ourselves professional, because in the period of adjustment and reorganization they appear awkward, they may bump into things, and they may assume very unusual postures and functional behaviors in an attempt to continue to use the vision which they

## PRIMARY CONCERNS IN THE USE OF RESIDUAL VISION

have. However, we also know that, if a person sees himself as capable of retaining some visual ability and using vision for personal care and continued independence, he will maintain an interest in using sight. Motivation to continue to be independent and to continue to function is one of the primary factors related to effective and efficient use of residual vision.

Losing vision need not mean total and complete loss of efficiency in all aspects of life, although if education and rehabilitation continue to use the word ‘blind’ for those who retain or have usable vision we may force them to fit that model—that label—and to begin to see themselves not as having visual ability to function but as lacking ability to function as a visual person.”



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# Utilization of Low Vision in Adults Who Are Severely Visually Handicapped

**NATALIE C. BARRAGA, ED.D.**

*Dr. Barraga is Professor of Special Education at the University of Texas, Austin.*

■ As professional people concerned with the education and rehabilitation of a segment of our population, we have been most imprecise in communicating just who we are concerned with and have lumped together people who have only one common characteristic—that of impaired vision—as a homogeneous group called ‘blind.’ At the same time, we have used restricting terminology for the purpose of legal and economic efficiency rather than for the concern of the individuals who constitute the population. Dr. Rusalem (1972) emphasizes that in using a ‘blindness’ scale we talk about people who are totally blind, those who have limited use of vision in most situations, those who may be able to use vision effectively in most situations and those who may be able to read newspaper print, as if they were a common group of people. Statistics show us that 89 percent of the ‘blind population’ have some degree of residual vision (Goldstein, 1972). Emphasis has therefore been directed toward helping people to compensate for *lack* of sight through focusing on other senses rather than on trying to teach adults to continue to or learn to use residual vision effectively.

Further confusion occurs when we fail to differentiate clearly between adults who have had limited residual vision throughout their lives and those who have had maximum visual abilities for most of their lives but who begin to lose visual capabilities in adulthood or in old age. The needs of these two groups in learning to use or in maintaining their use of vision are quite different, yet our tendency has been to treat these adults as if they had common characteristics and should be able to function efficiently under the same educational and rehabilitative program. This state of confusion has led us, in both education and rehabilitation, to treat people in ways which encourage them to fit a contrived label of ‘blindness’ rather than to teach them to reorganize their functional behavior so as to capitalize on and strengthen the utilization of any vision which they may have had all along or have retained.

**DEFINITIONS** Historically, the tendency has been to rely upon acuity measurements for distinction between those eligible for services and those for whom no legal or medical justification can be made for need of services. Once that measurement has been recorded, little consideration has been given to the variety of functional levels exhibited by persons who fall within the medical eligibility criteria. We do know that some of those at the upper end of the acuity measurement criteria function as virtually totally blind. Conversely, many whose measured acuity is at the lower end of the scale consider themselves and function as seeing people. Dr. Richard Hoover (1957) has suggested that “The term ‘blind’ be reserved only for those who are unable to see light or to take direction from it.” Another definition has been suggested which says that “A person is blind to the extent that he must develop alternative techniques for accomplishing efficiently those things which would readily be done with sight.” This might be called a behavioral definition. Many other definitions have been offered, such as ‘economic blindness,’ which relates solely to the capacity of the individual to function visually as far as his earning power is concerned. A variety of functional definitions have been offered which suggest that a person is blind to the extent that he is able or unable to function in his own situation and for the purposes for which he desires. Other definitions ignore the individual behavioral characteristics and focus upon the eligibility for services within the system, regardless of

**Abstract:** *Emphasis upon more efficient and effective use of residual vision is vital to the rehabilitation process of visually impaired adults. Labels of blindness limit motivation to use remaining vision. Personal functional needs and degree of capacity are uniquely individual characteristics which must be taken into account in learning to use residual vision to best advantage. A continuing evaluation and application of new optical, technical, and medical-surgical techniques should be an integral part of services to adults with diminished vision.*

**Note:** *Based on a paper presented at the Fifth General Assembly of the World Council for the Welfare of the Blind, held August 7-16, 1974, in Sao Paulo, Brazil, Reprinted with permission from the March 1975 issue of New Beacon, Royal National Institute for the Blind.*



**“Too frequently we are inclined to accept a diagnosis as definitive and to consider the matter closed. New surgical techniques and medical procedures are being developed all the time. . .”**

need or visual abilities of the person. A more restricted definition but with focus again upon functional characteristics suggests that blindness be defined upon the basis of the person's inability to read newspaper print with or without magnification.

Accepting the fact that we cannot now and possibly may not in the near future be able to agree on definitions of blindness, I believe that we can still focus upon the concerns of persons with severe visual impairments who have usable residual vision—either have had it throughout their lives or are able to maintain use of it even though they experience progressive loss in visual capabilities. For the purpose of the following discussion I shall therefore adopt Dr. Hoover's suggestion and talk about all those persons with visual impairment who have sufficient vision to see light or take direction from it and use it for functional purposes, because “a little residual vision makes a big difference” (Rusalem, 1972, p. 15).

#### **PRIMARY CONCERNS IN THE USE OF RESIDUAL VISION**

How a person sees himself is recognized as one of the primary determinants of how that person is likely to behave. By use of the label ‘blind’ for persons who have usable vision, we are actually saying to them, “You must see yourself as a blind person.” They therefore begin to view themselves as different people, and indeed we often say they *are* different people with the expectation that they will behave as different people. It is a well-known fact that people with residual vision often arouse irritation and annoyance in others, and even in those of us who consider ourselves professional, because in the period of adjustment and reorganization they appear awkward, they may bump into things, and they may assume very unusual postures and functional behaviors in an attempt to continue to use the vision which they have. However, we also know that, if a person sees himself as capable of retaining some visual ability and using vision for personal care and continued independence, he will maintain an interest in using sight. Motivation to continue to be independent and to continue to function is one of the primary factors related to effective and efficient use of residual vision. Losing vision need not mean total and complete loss of efficiency in all aspects of life, although if education and rehabilitation continue to use the word ‘blind’ for those who retain or have usable vision we may force them to fit that model—that label—and to begin to see themselves not as *having* visual ability to function but as *lacking* ability to function as a visual person. How the person sees himself is more related to how he is likely to function than are any perceptions of others or any measured criteria. Some people whom professionals have considered virtually blind by all measures and observations do not at all consider themselves blind and continue to function very efficiently and effectively in their own situations. Others consider themselves blind and behave as though they were, when in actuality all

measures indicate the potential for very effective visual ability. Perhaps then our first consideration should be an attempt to focus upon what the person has and can make use of, rather than upon how much he has lost of what he once had or how much he does not have of what we think he should have.

#### **Functional Needs and Capacity**

Individual personality characteristics as well as a person's image of himself as a human being are primary factors in the attempt to differentiate functional needs and capabilities between persons who are to make effective use of residual vision. Rather than focus upon a medical measurement or a legal eligibility factor, therefore, attention should be given to the question: What does this person need to learn, or to what does he need to adapt in relation to his own life? Additional questions to be answered will be: To what degree has the individual previously utilized his visual ability and to what extent can he continue to utilize vision in certain aspects of his life? What can he continue to do in his real life situations within his home, in his vocational pursuits, or in social relationships? Has he been accustomed to traveling independently? If he has, then this is an area to which attention should be directed, so that this independence in travel can be maintained to the highest degree possible, even though it must be adapted to the restrictions imposed by less visual capacity. Has he been a reader? If he has, then adaptive measures to permit him to continue reading visually are an important consideration. But if he has not, then this is of less concern. The stress here is upon being able to assess the qualitative differences in needs of individuals rather than assuming that needs are common just because there is a reduction in visual ability. The primary objective will be to focus upon the assistance which will enable any individual to continue to function in ways similar to those to which he is already accustomed and committed, but not to stress functioning for individuals who have never had a need to perform in that way previously. Until education and rehabilitation can make plans on a differential basis for individual needs and interests we are likely to be very ineffective in assisting people to make effective use of residual vision.

#### **Restoration, Optical Aids and Adaptive Training**

In rehabilitation and education we are concerned with assessing the potential for such restorative services as surgical procedures, medical treatment and continuous referral and consultation with ophthalmologists. Too frequently we are inclined to accept a diagnosis as definitive and to consider the matter closed. New surgical techniques and medical procedures are being developed all the time (Valvo, 1971), and it is necessary for persons with structural impairments, ocular pathology and medical conditions to be re-examined frequently. This means that ophthalmologists must be part of the rehabilitation team for all adults and that we have the responsibility to refer on a continuing basis all persons in order that it may be determined whether or not there are new techniques or procedures which might be of benefit to the adult with residual vision as well as to those who are totally blind. Although many of the medical procedures may not restore the ability to see with great clarity or to use sight for all purposes, any restoration of visual capability will be of benefit to the adult.

The under-utilization of optical aids is one of the most neglected areas in the rehabilitation of individuals with residual vision (Rusalem, 1972; NINDB, 1971). The pre-



scription and fitting of the wide variety of available optical aids is a skill requiring much time and patience on the part of the adult as well as the vision specialist who is prescribing and developing the lenses and aids. It is true that the longer an adult has been 'blind' or the less flexible he is in adapting to new styles of functioning the more difficult it is for the person to assist in fitting optical lenses and aids for his own personal use. Many visits and many lenses may need to be tried, rejected, retried, and often changed or modified over a period of many months and perhaps even years. The patient has to learn to use restored vision to his own satisfaction. At the same time he needs the support, assistance, and suggestions of the specialist in helping him achieve this satisfaction. Regardless of whether the restorative process is accomplished with surgery or with some type of optical aid, there will be many changes in *what* and *how* the person sees. Not only will there be changes in actual acuity, but changes in visual versatility, visual capacity, in the size of what he sees, and in distance and spatial relationships. Time must be given for adjustment to these 'distortions.' Along with many other factors which will be identified later, the previous visual experiences of the individual will greatly influence responses and co-operative abilities in the fitting of optical aids. Since not all optical aids and devices are actually fitted and worn by individuals, we should not overlook the possibilities in projection devices, closed-circuit television systems, or hand-held magnification devices to increase visual functioning in many adults for variable specific purposes.

Regardless of whether vision has been restored or the individual is learning to make use of residual vision after having lost or while experiencing loss of vision, adaptive visual training is a necessity if the adjustment to effective use is to be achieved. After the thorough examination by the specialist and in keeping with his recommendations, the next step is for the rehabilitation teacher or person who will assist in the adaptive training to determine the nature of visual activities needed or desired by the individual. In what day-to-day functioning does he want to use his vision? To what extent does he wish to utilize vision and/or aids in independent travel? Are the aids to be used in vocational settings or pursuits? Does he want to continue reading in the home? What has been prescribed may have been one lens, a series of lenses including both microscopic and telescopic power, even no lenses at all. Regardless of the situation, the adaptive training must be designed for the individual and for the purposes of visual functioning he desires.

The first part of the training will be to help the person develop some understanding of his visual loss, how it may limit him, but, more importantly, to what extent he may use the remaining vision effectively. To support the individual in terms of encouragement and suggestions for exploration of new ways to function is an important part in teaching him to adapt.

Another aspect of training may be that of exercises of a rather physical nature which assist the individual in focusing, in accommodative ability, and in other types of eye movements. Adaptation will need to be directed toward gauging distance; learning to make modifications for distortion, which is a necessary part of prescriptive optical aids; determining the appropriate illumination for particular tasks; and even to developing a modified procedure for the recognition of letters and words. There will need to be some adaptation to the accommodative process for learning to read at from one to six inches rather than from 14 to 16 inches.

The primary concern in adaptive visual training is to give the support, assistance, and help each individual needs to achieve the greatest possible degree of efficiency according to his visual demands (Fagerstrom, 1971; Farrar, 1971).

## Vocational and Occupational Considerations

One of the first tasks for teachers and rehabilitation specialists is to understand the different requirements and to provide opportunities for different occupational considerations between those who are totally blind and those who are legally blind but have usable residual vision (Lukoff, 1972; Rusalem, 1972; NINDB, 1971). Many individuals who have vision restored or who lose vision can continue in useful occupations, return to their own homemaking chores and continue to lead the same active lives they have previously led, provided consideration is given to the potential for continued or adaptive functioning. Little attention has been given to the role of vision in performing certain vocational skills. Because of the lack of research in this area, many rehabilitation counselors and employers have made erroneous assumptions about the degree of vision necessary for people to function effectively in the performance of certain occupations. For this reason, very few people with residual vision have been placed in positions requiring them to make use of vision. However, some agencies have begun to open up new possibilities and to focus upon the vision which the person has and not upon what he does not have. The following occupations are now filled by people with limited but useful residual vision: stock clerk, mail clerk, accountant, library assistant, chef, night watchman, construction worker, house painter, nurse, water ski manufacturer, electronic technician, television repairman, real estate salesman, school crossing guard, security guard, bridge attendant, and medical doctor (Rossi & Marotta, 1974). *All* of these occupations require the person to use his residual vision in the performance of his duties. Not all people with residual vision can do any of these things perhaps, but the real challenge must be that the decision is made on the capacity of the individual to function efficiently and effectively rather than upon any measured acuity or labeled categorization which prohibits the opportunity to be vocationally productive.

**INDEPENDENT TRAVEL AND MOBILITY CONCERNS** Since the development of the long cane and mobility training programs we have struggled in trying to apply a program designed for totally blind individuals to those who have usable residual vision. But, unfortunately, few adaptations have been made to this program and virtually no research has been done to provide understanding of the way low vision functions in movement and travel. There are some who suggest that a special low vision or residual vision training program is needed in the field of mobility to meet the functional and adjustment needs of those who can use their vision for independent travel (Apple & May, 1971). There are many unanswered questions: What does the person see and at what distance and under what conditions—time of day, whether it is cloudy or sunny, whether he is traveling in urban areas with many landmarks or whether he is attempting to travel in a more rural environment where there are fewer landmarks? Much attention must be given to assisting the low vision adult in recognizing new clues or continuing to use visual clues in his environment for purposes of movement. Even if the individual can only make out the outline of a tree trunk, the form of a mailbox, streetlight, fire hydrant, or part of a street sign, he can use



**“It is not necessarily the poor vision that causes poor functioning, but . . . what the brain does with the visual information in . . . making use of it and relating it to stored memory and to previous experiences.”**

these as indicators for his movement. Careful attention must be given to the selection of a variety of environments for training and to matching the training to the visual capabilities of the person in the appropriate environment. Individuals can learn that a dim object near at hand may be seen as well as a bright object at a distance and to use many factors as a basis for making a decision as to the distance of the object from him. There are several critical areas in use of residual vision in movement and travel which need to be considered and must be a part of teaching for the adult. These include:

1. The ability to locate and fixate on objects at varying distances and in different levels of illumination—both stationary and moving. The person needs to notice viewing angles and make an actual vision search by holding the head still and blinking to assist in the accommodation.
2. The ability to pursue visually movements in a single direction, a circular pattern, horizontally, vertically, etc. Targets with very slow movements should be viewed initially and then with a gradual increase in speed so long as the individual can follow them.
3. The ability to make accommodations rapidly and with accuracy by focusing on a distant object and then a near object until a degree of efficiency has been achieved.
4. The ability to adapt to a variety of lighting conditions from dim to bright. The use of both stationary and moving objects and such adaptive devices as dark glasses, hats, hand as a shield, etc. should be utilized.
5. The ability to call upon visual imagery and practice visual recall in the recognition of form and movement so as to enable the individual to use the vision he previously had or to learn to use that which he has not learned to use and to keep visual memories alive.
6. The ability to estimate and make decisions in regard to space and direction in relation to the use of his own body as well as the body movements of others.
7. The ability to utilize information from a wide variety of situations and distances in the minimal period of time (Apple & May, 1971).

The process of learning to use residual vision in efficient and independent travel may take some time, great cooperation on the part of the individual according to his needs and desires, and much flexibility and creativity on the part of mobility instructors in focusing upon the vision the person has rather than occluding him and treating him as if he had no usable vision for travel.

#### **PERCEPTUAL REORGANIZATION OR VISUAL PERCEPTUAL DEVELOPMENT**

The process of vision is as much a function of the brain and the mind as it is of the eyes themselves. One may have sight but yet lack visual capacity and efficiency. Even when acuity is poor, the brain receives visual impressions and combines them with other sensory information. It is not necessarily the

poor vision that causes poor functioning, but it is what the brain does with the visual information in terms of making use of it and relating it to stored memory and to previous experiences (Faye, 1970).

The reorganization of visual perceptual impressions and the learning in visual perceptual development are two different processes and must be considered separately. The first consideration, therefore, will be for the individual who has had 'normal' visual abilities and has lost them so that he now has what we term 'low vision.' In these cases the process is one of reorganization of the mind in relation to unclear, distorted, or limited visual input. The person losing vision or who has lost vision must be taught to continue to attend to all visual objects and materials. This will require a great deal more energy and concentration on what he is seeing. It will be necessary to study forms and outlines and to be able to relate them mentally to things which have previously been seen and which are stored in the mind as visual memories. The person learns to use the brain more to exercise his imagination and his deductive reasoning in order to make inferences and tentative decisions on the basis of very limited visual cues. In other words, the individual must learn to think visually at all times (Valvo, 1971). The more he looks with concentration, makes associations with visual memory, continues to move through and keep contact with familiar environments, and thinks visually, the more efficient will be the perceptual reorganization process. The mind is learning to relate to visual information and is organizing itself in a different way in regard to the visual input. As more and more deductions, inferences and decisions are made using residual vision, the person becomes more effective in functioning. Obviously, there are many psychological factors involved in this reorganization process.

For the adult who sees himself as having lost what he once had, rather than having retained part of what he once had and used, the perceptual reorganization will be impeded. One who wants to continue functioning visually and who is permitted and encouraged to continue using remaining vision will be able to accomplish the perceptual reorganization much more rapidly. The opportunity to continue with similar visual experiences and functioning as he has previously experienced will help to eliminate the fear and uncertainty associated with loss of clarity in visual functioning. The usefulness of remaining vision depends to a large degree on the use to which it is put—the person who continues reading, even with difficulty or quite slowly, who continues writing for his own use and for others, who continues watching television and expects to see and be able to interpret that he sees will continue to do so with much greater efficiency. One of our problems in education and rehabilitation has been the fact that too little attention has been given to the reorganization or development of perceptual skills in relation to vision. We have not spelled out the specifics of how to train a person to utilize remaining vision to his maximum capabilities. Until we attend to this in experimentation and research, we shall probably continue to teach adults with residual vision to be blind rather than to continue to function visually.

For those adults who have been blind from early in life and have had some visual capacity restored or those who have had very limited visual abilities throughout most of their life, the perceptual development process is somewhat different. Never having learned to use the eyes themselves as a means of surveying the environment and the objects and materials within it, the individual has to build up a store of



visual impressions and memories before he can experience effective use of vision. In the case of the person who has had vision restored after having been totally blind, the visual world can be quite confusing and overwhelming (Valvo, 1971). In fact, the individual may be so confused that there is a tendency to keep from using the vision which he has. Studies of people who have been given visual capabilities for the first time in adulthood have shown that the process of visual perceptual development is like that of a young child learning to see and learning to recognize what he is seeing and to use vision in his functioning (Valvo, 1971; von Senden, 1960). The process of development and suggested stimulation and training approaches have been delineated in a previous publication (Barraga, 1970).

**SUMMARY** Throughout this paper the primary concern has been to focus on the many variables and aspects of vision related to most efficient and effective use of residual vision in the adult as a new way to think about the rehabilitative process and role. Despite the labels and confused definitions, the important consideration is that the individual be thought of and treated as a 'seeing' person rather than a 'blind' person and that every opportunity and encouragement be given to using the remaining vision in every area of functioning.

Because each individual with residual vision has unique characteristics, few generalizations about self-image, optical aids, functional capabilities, occupational abilities, independence in travel, or perceptual development or reorganization can be made about them as a group. There will be a wide range of needs for psychological, medical and physical services.

Studies have shown that the important variables which determine effectiveness in the use of residual vision are these: 1) Motivation to use vision. 2) Intelligence and thinking ability. 3) Personality, self-concept, and attitudes about self and the world. 4) Age at onset and age at which rehabilitation begins. 5) Type and degree of correction or optical aids possible. 6) Nature of defect or disease. 7) Family structure, needs, desires, and attitudes. 8) Past experiences and occupation.

There will be need for continuous involvement of eye specialists, both medical and optical, for evaluation and re-evaluation of surgical or restorative possibilities. Counselors and rehabilitation teachers will need to give assistance as increased or diminished functioning expands or restricts the life-style of some adults.

The challenges for the future are many, some of which are:

1. Refine and re-evaluate the definitions and stigmatizing labels given to persons.
2. Reassess our priorities and programs in rehabilitation so as to provide for individual needs and capabilities of adults with remaining vision.
3. Take a critical look at our systems for delivery of services and the persons delivering the service so that they relate to the needs of the individual with residual vision (89 percent of all legally blind) rather than exclusively to those who are totally blind.
4. Direct research into the development of theories, experimentation, and scientific study of the relation of kinds and degrees of residual vision to the behavioral functions performed by individuals—at least as much as is given to blindness research *per se*.
5. Much more efficient and effective communication between, and greater use of, teams of specialists in the rehabilitative process for adults.

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## Transportation Guidance System for Blind Travelers

A braille guiding system has been set up at the Hankyu Railways' Kami-shinjo Station in Higashi-yodogawa-ku, Osaka, Japan. The facilities were constructed when the station reopened on an overhead level in December, 1975. The system is arranged so that tiles, designed with braille projections, are embedded in a road and in the station's concourse. These tiles guide the blind person to the fare indicator, then to the ticket vender, through a narrow gate and up to a staircase landing. From there, chimes are sounded to lead the passenger up the rest of the stairs and onto the platform, where rubber-ribbed tiles caution against stepping out too close to the trains. Similar systems are presently being planned for other stations in Japan.



# Patient Satisfaction with Residential Adjustment to Blindness Training

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■ The consumer movement has made itself felt recently in a variety of areas, beginning in the marketing field and extending into human services including education, and more recently health care. Attempts to measure dimensions such as patient satisfaction with hospitalization (Eisenberg, 1969; Houston & Pasanen, 1972) and clinical nursing care (Nehring & Geach, 1973) have been successful, although some methodological problems have been acknowledged. However, professional groups and administrative staff have been reluctant to encourage or even accept this approach to the evaluation of services on the grounds that the general public is not sophisticated enough to evaluate treatment procedures (Ellsworth, 1975). However, much of the resistance to patient evaluation seems to stem from a defensive stance as there are important, although nontechnical, parameters of performance of which the patient is the best judge. The patient, for example, usually knows better than anyone else the state of his feeling, whether or not he was dehumanized in the process of receiving services, and whether his needs were met. Disconcerting too, is the finding that persons who provide patient care rank patient evaluation of care as relatively low in terms of the influence which it has or even should have on rewards or penalties (Marram, 1973).

Systematic patient satisfaction procedures have been rare in rehabilitation settings and, to our knowledge, nonexistent in the field of blind rehabilitation. Yet each year millions of dollars are spent on many types of blind rehabilitation services, and decisions are made often based upon subjective feelings of administrative and professional staff with little input from the people who should benefit from them.

**QUESTIONNAIRE** A preliminary attempt to measure patient satisfaction with residential adjustment to blindness training was made by means of questionnaire responses of former patients who had been discharged from a rehabilitation center six months or longer. While the training program studied was that provided at a VA Hospital residential adjustment to blindness center, the program model has been utilized by many state and private agencies for the blind. The findings may also serve as comparative data for other programs which offer only specific facets of blind skill training.

The Eastern Blind Rehabilitation Center, VA Hospital, West Haven, Connecticut is part of an 805-bed capacity general hospital affiliated with Yale University School of Medicine. The Blind Center itself has 20 beds to accommodate both those patients in the regular adjustment to blindness program and in the special low vision or electronic aids program.

Patients who are admitted to the program must be veterans entitled to VA medical care. Although the presence of a service connected disability establishes greater priority in terms of admission, veterans receiving training may be either service or nonservice connected for a disability, but their sight loss must fall within the legal definition of blindness. Ninety-eight percent of the patients are male. Their mean age is 43.9 (SD=14.0). Most have had substantial high school training with 11.1 years of education (SD=3.1). The majority are Caucasian, although compared with the general population a high proportion of Blacks receive training (70.8 percent Caucasian, 25.9 percent Blacks, and 3.3 percent other). In terms of marital status, 60.2 percent are married, 21.9 percent are single, 12.2 percent are divorced or separated, and 5.6 percent are widowed. Although all are adventitiously blind, the onset of sight loss was gradual in 69.3 percent of the cases; 60.4 percent are classified as high

**Abstract:** *Patients who had received adjustment to blindness training at a VA residential center were questioned as to the program's effectiveness after they had returned to their community for a period of six months or longer. Patient satisfaction was high, with approximately half of the veterans rating the program as optimal in most areas. Expressions of dissatisfaction were directed to wanting more rather than less training, attesting to the relevancy of the traditional model of residential blind skill training. Need for additional braille and communications skills was expressed, as well as a desire for more recreational activities. Use of blindfold training was strongly endorsed. Essentially two-thirds of the blinded veterans who received training described their lives as either extremely satisfying or somewhat satisfying at that time. Patient satisfaction ratings were seen to be a useful method of evaluating rehabilitation services.*



partial, 14.8 percent as low partial, and 24.9 percent as totally blind. Mean Wechsler Adult Intelligence Scale Verbal IQ is 101.5 (SD=15.8).

### Adjustment Training Program

The basic program consists of 14 to 18 weeks of adjustment training, with six regularly scheduled 50-minute periods of instruction in mobility, manual skills, communications, and braille each day, five days a week. The schedule may be interrupted periodically for patients' individual needs; techniques of daily living, low vision training, physical education, social work, psychological services, and medical appointments. In addition, patients have weekly afternoon group psychotherapy, a patient government meeting, miscellaneous social activities, and an optional chaplain's group. Other programs which may be added include educational therapy, attending college classes, and vocational experiences. Service and civic group volunteers provide evening and weekend recreational programs ranging from bingo and card parties to fishing trips.

### Program Professionals

Staff varied in number throughout the years studied, but usually there were eight mobility instructors, four teachers of manual skills, two communication instructors, two braille teachers, one techniques of daily living instructor, two secretaries, and two administrators. A Ph.D. clinical psychologist and a social worker are assigned to the unit. In addition to working at the Center, a substantial portion of the social worker's time is spent aiding blinded veterans in the community as Visual Impairment Services Team Coordinator. The Center also has a physician part time. A consulting optometrist spends two half days at the Center each week. Each patient is also seen by at least one resident from the Ophthalmology Department of Yale University. Medical consultations from services such as neurology, psychiatry, internal medicine, are also available. Students from New England universities' and colleges' graduate programs in mobility, social work and psychology, and from undergraduate programs in manual skills receive training and provide service periodically during the year. During the latter part of the period included in this study a low-vision specialist, a research assistant and a research health scientist (Ph.D. in experimental psychology) were assigned to the Center by the office of VA Prosthetics and Sensory Aids Research.

**METHOD** A six-page questionnaire consisting of 27 items (both checklist and open-end form) was developed. The checklist questions usually involved five alternative answers which ranged from expressions of extreme dissatisfaction based upon a lack of service or training, to satisfaction with adequate training or service, to extreme dissatisfaction based upon an overabundance of training. The items covered an evaluation of the basic aspects of adjustment training as well as requesting current demographic information. A cover letter introducing the questionnaire explained the nature and purpose of the study, promised anonymity of individual responses, and assured the respondent that it would in no way affect his future benefits. In accord with the hospital's ethics committee, the respondent was asked to sign the completed questionnaire and retain the enclosed copy of his agreement. The name of the person reading the material to the blinded veteran and recording his answers was also requested. An addressed, stamped envelope was included to facilitate the questionnaire's return.

The questionnaire's were sent to patients who had been admitted to the Center from its beginning in 1969 to the latter part of 1973; all patients having been returned to their community for a period of at least six months. If their completed questionnaires were not returned within two months, a second was sent. Data were then coded and punched on IBM cards which also processed certain demographic and psychological data. For the purpose of the present study, only those items which dealt specifically with patient satisfaction were included in the analysis.

### Weighted Responses

Patient satisfaction was recorded in three ways:

1. Frequency counts and subsequent percentages of patients who answered each item alternative or choice.

2. Mean ( $\bar{x}$ ) response to each question after each item alternative was weighted as follows: extreme dissatisfaction because not enough service or training was provided; expressions of mild dissatisfaction for the same reasons; optimal extent of service; mild dissatisfaction because too much or irrelevant training was provided; and extreme dissatisfaction because of too much training.

3. Standard Deviation (SD) which serves as an index of variation of satisfaction level with a larger standard deviation indicating a wider dispersion of patient responses and less agreement on the ratings of the group.

**RESPONSES** Questionnaires from 138 veterans represented a return rate of 72.6 percent of those who were enrolled in the regular adjustment to blindness program and remained for at least one month. As a rule, withdrawals from the program within the first month were due to transfer because of specific medical needs. Excluded from the study were the patients in special low vision and electronic aid programs and first month transfers to medical wards ( $n=59$ ), persons deceased since training ( $n=4$ ), those whose materials were returned as undeliverable ( $n=5$ ), individuals who were either physically unable or unwilling to report their answers on the standard form but who replied by telephone ( $n=7$ ), and those who returned their materials too late to be included in the analysis of the data ( $n=10$ ). Fifty-two patients presumably eligible for inclusion in the study did not return their materials. This figure also included patients whose materials were undelivered for a variety of reasons, including those listed above, but which were not returned to the Center and could not be listed in the expressed categories, as well as patients unwilling to participate in the study. Although the responses of 138 patients were considered, the actual number answering each item varied, accounting for different total responses in some of the analyses.

### Length of Training

While patients remained in the program over a wide range of time periods, there appeared to be a preference for programs shorter than the advertised four-month duration. Discharge dates are usually determined by input from both patients and staff, based on progress, estimates of probable gain, and other considerations. Separation from family is felt to be an important consideration for most patients, and there is often a conflict between obtaining proficiency in blind skills and a desire to return home as soon as possible. Earlier discharge dates are usually proposed by patients rather than staff.

Overall patient satisfaction with length of program is apparent in Table 2, since nearly half rated the program as



# Patient Satisfaction

**Table 1. Length of Training**

Item Choices	Number of Patients	Percentage
Less than 14 weeks	47	34.3
14 to 16 weeks	53	38.7
17 to 19 weeks	24	17.5
20 to 22 weeks	9	6.6
More than 22 weeks	4	2.9
	<u>N=137</u>	

**Table 2. Satisfaction with Length of Training Program**

Item Choices	Number of Patients	Percentage
(1) Much too short, could have used a great deal more training	18	13.1
(2) A little too short, could have used a bit more training	40	29.2
(3) About the right length of time	68	49.6
(4) A little longer than I needed	11	8.0
(5) Much too long, I received too much training	0	0.0
	<u>N=137</u>	

**Weighted Satisfaction Level:**  $\bar{x} = 2.53$   
**SD = 0.82**

**Table 3. Satisfaction with Orientation and Mobility Training**

Item Choices	Number of Patients	Percentage
(1) Wanted or now need much more	20	14.9
(2) Wanted or now need a little more	34	25.4
(3) Received right amount	70	52.2
(4) Received slightly more than wanted or needed	10	7.5
(5) Received much more than wanted or needed	0	0.0
	<u>N=134</u>	

**Weighted Satisfaction Level:**  $\bar{x} = 2.52$   
**SD = .84**

**Table 4. Satisfaction with Manual Skills Training**

Item Choices	Number of Patients	Percentage
(1) Would have liked or now need much more	26	19.3
(2) Would have liked or now need a little more	43	31.9
(3) Received the right amount	42	31.1
(4) Received a little more than wanted or needed	10	7.4
(5) Received much more than wanted or needed	14	10.4
	<u>N=135</u>	

**Weighted Satisfaction Level:**  $\bar{x} = 2.58$   
**SD = 1.19**

**Table 5. Satisfaction with Communications Training (typing, uses of recording devices, etc.)**

Item Choices	Number of Patients	Percentages
(1) Needed or wanted much more training	38	27.7
(2) Needed or wanted a little more training	37	27.0
(3) Received the right amount	52	38.0
(4) Received slightly more than wanted or needed	5	3.7
(5) Received much more than wanted or needed	5	3.7
	<u>N=137</u>	

**Weighted Satisfaction Level:**  $\bar{x} = 2.28$   
**SD = 1.03**

**Table 6. Satisfaction with Braille Training**

Item Choices	Number of Patients	Percentages
(1) Needed or wanted much more training	33	24.6
(2) Needed or wanted a little more training	25	18.7
(3) Received the right amount	55	41.0
(4) Received slightly more than wanted or needed	8	6.0
(5) Received much more than wanted or needed	13	9.7
	<u>N=137</u>	

**Weighted Satisfaction Level:**  $\bar{x} = 2.57$   
**SD = 1.20**

optimal. Dissatisfaction occurred in expressions of wanting more rather than feeling a need for less training. These responses, in conjunction with Table 1 which indicated that patients left earlier than the standard program proposed, suggested that patients who were eager to return home at the time might regret the decision when they gained some perspective on the matter.

### **Orientation and Mobility**

Satisfaction with orientation and mobility training as with the overall program appeared high (Table 3). Few persons believed that they received too much and some were dissatisfied in the direction of wanting more. The standard deviation is relatively small suggesting a minimal amount of variation in the answers of the respondents. It should be noted that no one felt that he received an extremely excessive amount of mobility training.

### **Manual Skills**

Satisfaction with manual skill training results are not quite as clearcut as those for satisfaction with mobility training (Table 4). Although the mean approaches that of mobility, the variability is much greater. More patients expressed a need for more training, while at the same time nearly 18 percent indicated that they received too much; some of these emphasized their dissatisfaction strongly by choosing the extreme category. Accordingly, the need for or relevancy of manual skills seems to be a very individual matter.

### **Communications**

The communications area is one where much more training is felt to be necessary, with over one-fourth of the patients indicating feelings in the extreme category (Table 5). The variation of answers is great but somewhat less than in the manual skills area.

Despite de-emphasis in *some* rehabilitation programs, and the development of electronic communication devices, braille continues to be considered important to patients who have completed training and have had some chance to reflect upon its value. While some patients objected to emphasis on this training, almost three times as many patients would like it to be stressed more (Table 6). The large standard deviation reflects this extremely wide variability.

### **Recreation**

A desire for more recreational activities is expressed in Table 7. The recreation program was not fully developed at the time of the study but was provided on an informal basis with each department taking its turn at providing service. This has now been changed at the Center. Some patients regard recreation as important and expect it to be part of the program supporting the conclusion that one of the functions of a blind center is that of a resort (Needham, De l'Aune, & Fry, 1975).

### **Living Skills and Counseling Services**

The Center's training program in daily living skills appeared to be an area which met with one of the greater degrees of satisfaction, although there is still an area of dissatisfaction toward wanting more rather than less training (Table 8). Somewhat less variation among respondents to this area is indicated by the smaller standard deviation.

Reactions to social work services were quite positive, with the mean approaching ideal value and with a small standard deviation (Table 9).

Satisfaction with psychological services tended to follow the same pattern as satisfaction with social work services, reflecting a relatively high level of patient accord (Table 10). The standard deviation is larger than that for social work, indicating that patients have somewhat more variability regarding their feelings, possibly due to the fact that the psychologist provided a greater variety of functions ranging from long testing periods to counseling and psychotherapy.

### **Blindfold Training**

The issue of blindfold training has been debated frequently with orientation and mobility specialists often disagreeing as to its merit. While blindfold training at the Center is not used exclusively, patients indicate that it was of substantial benefit (Table 11). Based on the percentage of patients who indicated that they did not have blindfold training, correcting for patients who were totally blind (approximately 25 percent), it would appear that nearly 4 percent who had some vision remaining were not provided with this experience. Whether this group was determined because of judicious selection by the clinical staff as possibly being detrimentally affected by a blindfold, or if they were deprived of this potentially positive experience because of the orientation and mobility specialist's own bias is an interesting point.

**CONSUMER SATISFACTION** Overall life satisfaction, a measure involving much more than the effects of adjustment training, indicated that the majority of veterans, despite their handicap, regarded their lives in a positive manner (Table 12).

Overall findings essentially reflect strong consumer satisfaction with residential adjustment to blindness programs such as those provided by the Veterans Administration. Expressions of dissatisfaction, however, are in the direction of the consumer wanting more rather than less, suggesting that despite being provided with intensive staff-to-patient ratio, the point of saturation with services has not been reached. Patients who have returned to their homes and begun putting their skills into effect usually find that they want more training.

The findings support the relevance of the so-called traditional blind skill programs formulated by the Veterans Administration in terms of both time and curriculum. Some administrators tend to want to streamline programs of this type, reducing the length of stay and omitting classes which at the time are considered irrelevant by the patient. Braille especially has been singled out as diminishingly important, being replaced largely by tapes and electronic reading aids. In retrospect, braille is regarded by patients as an area which needs emphasis, with approximately one-fourth of the population wanting much more. Training in communications is an area, along with braille, which received the lowest mean weightings and appears to need strengthening.

It should be noted that training in communication aids and braille is somewhat more academic in nature than other services sampled, and is dependent upon physical abilities which are limited in many veterans at the Center. For example, 24.5 percent of the veterans were diagnosed as diabetic, a disease which often has peripheral neuropathy as an accompanying characteristic, making braille skills and typing difficult. Accordingly, patients' expressions of dissatisfaction might mirror their own inadequacy in learning these skills rather than their not being provided with sufficient opportunity or training.



# Patient Satisfaction

**Table 7. Satisfaction with Activities in Recreation Program**

Item Choices	Number of Patients	Percentages
(1) Far too few activities	39	30.0
(2) A few less than would be desirable	19	14.6
(3) About the right number	66	50.8
(4) A few more than were needed	2	1.5
(5) Far too many	4	3.1
	<u>N=130</u>	

**Weighted Satisfaction Level:**  $\bar{x} = 2.33$   
**SD = 1.02**

**Table 8. Satisfaction with Techniques of Daily Living Training (grooming, cooking, room maintenance, etc.)**

Item Choices	Number of Patients	Percentage
(1) Wanted or now need much more training	10	7.4
(2) Wanted or now need a little more training	21	15.6
(3) Received right amount	87	64.4
(4) Received slightly more training than wanted or needed	9	6.7
(5) Received much more training than wanted or needed	8	5.9
	<u>N=135</u>	

**Weighted Satisfaction Level:**  $\bar{x} = 2.88$   
**SD = 0.86**

**Table 9. Satisfaction with Social Work Services**

Item Choices	Number of Patients	Percentage
(1) Wanted or needed much more contact	13	9.9
(2) Wanted or needed a little more contact	27	20.5
(3) Received right amount	74	56.1
(4) Received a little more contact than wanted or needed	12	9.1
(5) Received much more contact than wanted or needed	6	4.6
	<u>N=132</u>	

**Weighted Satisfaction Level:**  $\bar{x} = 2.70$   
**SD = 0.91**

**Table 10. Satisfaction with Psychologist and Psychological Services**

Item Choices	Number of Patients	Percentage
(1) Wanted or needed much more contact with him	15	11.3
(2) Wanted or needed a little more contact with him	23	28.6
(3) Received right amount	74	55.6
(4) Received a little more contact than wanted or needed	9	6.8
(5) Received much more contact than wanted or needed	12	9.0
	<u>N=133</u>	

**Weighted Satisfaction Level:**  $\bar{x} = 2.85$   
**SD = 1.02**

**Table 11. Satisfaction with Blindfold Training in Mobility**

Item Choices	Number of Patients	Percentage
Was very helpful	55	44.7
Somewhat helpful	17	13.8
Neither helpful or detrimental	4	3.3
Somewhat detrimental	7	5.7
Very detrimental	5	4.1
Does not apply—did not have blindfold training in mobility	35	28.5
	<u>N=123</u>	

**Table 12. Satisfaction with Life at Present Time**

Item Choices	Number of Patients	Percentage
(1) Life extremely satisfying	39	28.7
(2) Life somewhat satisfying	52	38.2
(3) Life neither satisfying or unsatisfying	19	14.0
(4) Life somewhat unsatisfying	15	11.0
(5) Life extremely unsatisfying	11	8.1
	<u>N=136</u>	

**Weighted Satisfaction Level:**  $\bar{x} = 2.31$   
**SD = 1.23**

## Rehabilitation Counseling

On the other hand, the relatively high acceptance rankings of social work and psychological services indicate both the need for and acceptance of these facets of rehabilitation. Agencies for the blind will often employ social workers or psychologists on a part-time basis. While a part-time approach is certainly better than none, full-time services of both professionals for a group of 20 live-in patients is not wasted.

Although the return rate of the questionnaires was relatively high, there is the possibility that response came from patients with more positive attitudes (Kish & Hermann, 1971). Conversely, it may be that the patient is functioning in an efficient manner and regarded the program as quite adequate, and is unwilling to make suggestions that would bring about change. It should be noted that most blinded veterans required an intermediary to read the items and record answers to the questionnaire. The intermediary could well be a family member who could have an effect on the patient response. If the patient were not doing as well as he felt he should, to justify himself to the intermediary, he might project his shortcomings upon the Center. Possible lower measure of patient satisfaction would result, and the study would be an underestimate of the extent of satisfaction.

Construction of the scale tends to limit positive expression of satisfaction, since one cannot express extreme feelings within the format of the question. For instance, only one alternative denotes satisfaction while four denote varying degrees of dissatisfaction. If a ranking system such as a five-point scale ranging from very satisfied to very dissatisfied were used, high scores would tend to pull up any indications of dissatisfaction. The rating system used in this study does specify the nature of the dissatisfaction, and it is the opinion of the authors that this information is preferable to insuring high marks for the services provided.

**EFFECT OF LIFE SATISFACTION** It must be asked to what extent life satisfaction in general influenced the response to the questionnaire. While the positive findings of the study are stressed (67 percent of the respondents regarded their lives as satisfying while only 20 percent rated their lives as unsatisfying), a study of the general population (Robinson & Shaver, 1973) indicated that about 10 percent viewed their lives in a negative manner. No data on other physically disabled groups is available. It is possible that this slightly negative "set" may have created a halo effect which might also minimize satisfaction with blind skills and serve to dampen the still essentially positive findings.

One wonders what the level of patient satisfaction might be for services less intensive than those provided by the VA. The present study is descriptive in nature and no control group was utilized. Data are needed, and a study is being planned to investigate patient satisfaction with other modes of blind rehabilitation such as adjustment training in the home. It seems logical to assume that since the latter is much less intensive, satisfaction will be less, providing the patient has an understanding of the possible services which could be provided through blind rehabilitation.

### A Viable Tool

It is strongly recommended that other agencies serving the blind utilize systematic patient satisfaction measures in evaluating their services in general, to provide a longitu-

inal assessment by which to measure the effects of changes in their programs and to serve as a comparison with other agencies. The high rate of return, wide range of answers provided, and general interest of patients makes patient satisfaction ratings a viable tool for program evaluation. Having a chance to participate in an evaluation of this type tends to build good will among patients since they feel that their opinions are important, especially if the materials are utilized. This type of information, while an important part of determining an agency's adequacy, should not lessen the need for other types of evaluation such as accreditation procedures, peer review, administrative audits, and ratings of change by significant others. Once the evaluations are obtained, there is a responsibility to act upon them. Results should be communicated to staff, with areas of high satisfaction receiving commendation and those of low satisfaction being provided with assistance so that they can better serve their clients.

Appreciation is expressed to Ms. Mary Dolan for her suggestions.

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## International Science Travel Grants

The National Science Foundation will award international travel grants to about 90 young scientists to attend 40 NATO sponsored Advanced Study Institutes in Europe during the summer of 1976. The two- to three-week study sessions provide advanced instruction in the social, physical, and life sciences; engineering; and mathematics. For more information contact: NATO Travel Grants, Fellowships and Traineeships, Division of Science Manpower Improvement, National Science Foundation, Washington, D.C. 20550.



# Cognitive Models for Spatial Representations in Congenitally Blind, Adventitiously Blind, and Sighted Subjects

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**Abstract:** *Congenitally blind, adventitiously blind, and sighted subjects' informal verbal response to questions about furniture arrangements verbally described by the experimenter were analyzed. From their accuracy, RT, and verbal protocols it was concluded that prior visual experience is crucial though not essential to the development of a "frame of reference," i.e., a two-dimensional symbol structure for spatial representation. The conclusion supports the belief that visual-modality perceptual-symbol-structures are useful in the development of a frame of reference and also casts some doubt on Juurmaa's conclusion (1973) that the congenitally blind develop the same type of spatial representations as the sighted.*

■ A blinded person is deprived of a segment of experience which might hinder cognitive development to the point that rarely, if ever, would the ability to form a "frame of reference" in which to store internal representations of objects and their spatial relationships be developed.

An individual with a frame of reference is one who sees himself and all other objects as occupying specific locations in an underlying space. Practically speaking, a frame of reference is a representation in which spatial relations can be stored and from which they can be identified.

In order to represent objects in two-dimensional space a human must construct in long-term memory (LTM) a symbol structure containing symbols for each object, and relations between those symbols. If a person possessed a frame of reference, his symbol structure could be a two-dimensional "map" of the objects. When a new object is perceived, it could be inserted into the structure in its proper place in the frame, which might be thought of as a system of Cartesian coordinates in the way it facilitates such an insertion. After an object is inserted, its two-dimensional relationships with all previously inserted objects would be stored without further fixation.

On the other hand, a person having no frame of reference would possess a very different type of symbol structure. When a new object is perceived, only its explicit relations with other objects would be stored. If relations were perceived one at a time, with no object related to more than two other objects, then the symbol structure would be limited to a one-dimensional series of objects connected by different relations. Such a one-dimensional structure *would* hold the two-dimensional relationships between objects that are far apart implicitly, but only insofar as a person could process all the relations separating the objects and calculate the relations' net effect.

**FRAME OF REFERENCE** Perceptual symbol structures in the visual modality have great value in developing a frame of reference. Their value is due to two features—they are *global* (in that a large number of objects can be included in one perceptual symbol structure), and they are *spatial* (in that the "next-to" relations between symbols refer to spatial rather than temporal adjacency).

These two features are possessed by perceptual symbol structures in the various haptic modalities, but only if structures from different modalities are combined. That is, the leg-kinesthetic modality provides the most global view of objects, but connects them only temporally. Spatial relations can be developed by combining leg-kinesthetic symbol structures with structures in the cutaneous modality in what we called "active walk." Similarly, active-reach and active-touch combine cutaneous structures (linked by spatial relations) with arm- and hand-kinesthetic structures (which are of a somewhat global nature).

A frame of reference in one's internal representation of space seems to require a simultaneously global and spatial symbol structure. If a person is born blind, such simultaneity can only be achieved through combinations of perceptual symbol structures from different modalities. The congenitally blind may never develop the combinations to the point of possessing a frame of reference.

Previous experiments have addressed the question of whether or not the congenitally blind develop a frame of reference. In reviewing the literature, we begin with Worschel's study (1951). He found that if he led subjects across the two short legs of a right triangle and asked them to walk back to the starting point along the hypotenuse,



blindfolded sighted subjects fared better than congenitally blind subjects. His conclusion was that the sighted had a frame of reference to which they could relate their ambulatory perception of the short sides and from which they could trace their locomotion pattern along the third side. The idea that the congenitally blind did poorly because they had no such frame of reference was consistent with von Senden's observational and introspective evidence (1960). For example, he observed the technique of a congenitally blind boy sitting on a beach as he built a circle of stones around himself. Von Senden concluded that "circle" to a congenitally blind person is a series of kinesthetic cues, in this case a series of movements that told the boy his elbows were straight and his hands touching the stones as he moved his arms around his body.

### Sensorimotor Spatial Awareness

While this view that the congenitally blind have only sensorimotor spatial awareness seems plausible given the overwhelming nature of their disability, Juurmaa (1973) attacks it convincingly. He replicated Worschel's results in the triangle locomotion task but then used a figure less familiar than a triangle and found that the congenitally blind perform as well or better than the blindfolded sighted subjects. This result is not specific to locomotion-type "far space" tasks. It can be generalized to "near space" tasks as shown by Juurmaa's result (1973) that in a task of building a cube from unfamiliar parts the blind do as well as the blindfolded sighted. The argument here is that familiarity with the figures enables the sighted to perform better than the congenitally blind because they can visualize—i.e., transpose a perceptual symbol structure built up in a haptic modality into a visual modality structure (known as an "optomorphic form"). Optomorphic forms can be dealt with more successfully than the congenitally blind can deal with structures remaining in the haptic modality (such structures are haptomorphic forms). Revesz (1950) argues that transposition into optomorphic forms is done via a nonsensory "concept" of the familiar figure. With the figure unfamiliar, a concept of it is not readily available, fixation is less accurate or impossible, and hence the sighted are less able to transpose into the visual modality where their advantage over the congenitally blind lies.

### Visualization

Further evidence supporting this argument is that for sighted subjects there is no significant correlation between visual ability and tactual-locomotion abilities in tasks involving unfamiliar figures. This indicates that the sighted do not make use of visualization in performing such tasks. Without visualization, so the argument runs, the sighted rely on their spatial sense just as the congenitally blind do and the two groups do equally well. By extending analysis to unfamiliar figures, Juurmaa has weakened the conclusion made on familiar figures that the congenitally blind have a less concrete spatial sense than the sighted. Similarly, he responds to other evidence of sighted subjects' superiority by extending the analysis into an additional area. For tasks in which congenitally blind children are outperformed, Juurmaa cites evidence that they are merely developing more slowly—only to catch up by the age of about sixteen. For example, five-year old congenitally blind subjects' sound localization ability is less than that of five-year old blindfolded sighted subjects, but this gap narrows as subjects get older until at age sixteen congenitally blind and sighted subjects do equally well (Gomulicki, 1961).

Gomulicki obtains a similar result in studying subjects' ability to transfer knowledge acquired by hand kinesthetics in a finger maze to an ambulatory maze of the same pattern. In much the same way, ability in the use of brachial (arm kinesthetic) perception for spatial manipulation is poorer for congenitally blind than sighted subjects at ages 5 to 12, but gradually becomes more equal with age. Finally, congenitally blind children of age 7 to 13 gradually develop the ability to search systematically for a distinctive tactile feature in a task involving recognition of tactual figures rotated from the position in which they were learned (Berla, 1973).

Juurmaa presents results of this type as reasons to believe that the congenitally blind do develop, albeit slowly, a spatial frame of reference. He argues that once the frame is developed, the congenitally blind can deal with stimuli in relation to it and thus give the stimuli more meaning. With a frame, the congenitally blind essentially act as the sighted did from the earlier age when they developed their frame of reference.

**DEVELOPMENTAL EVIDENCE** Juurmaa's analysis of developmental evidence and evidence involving unfamiliar figures refutes many earlier arguments and leads him to an unequivocal statement of his belief that the congenitally blind have a spatial frame of reference. He believes it is no different from the frame of the sighted, in spite of the fact that it is built up from different modalities of input. However, there is evidence to the contrary—evidence that Juurmaa might not find as easy to refute as the studies he chose to discuss.

One such piece of evidence is that of Fisher (1964), who found that artificially introducing a frame of reference (in the form of a contextual cue) improved the auditory localization performance of congenitally blind but not of sighted subjects. This indicates that the sighted already had an internal frame. A study by McKinney (1964) leads to a similar conclusion. He found that congenitally blind subjects' ability to recall which finger the experimenter had touched was more adversely affected by turning subject's hand over twice than by turning it once. Blindfolded sighted subject's performance was harmed more in the *latter* condition. This indicates the sighted were not mentally following the finger-hand relationship as it turned, but rather had an image of the relationship in space and could refer to that image as long as the hand was returned to its original position (as it was in the two-turn condition). Congenitally blind subjects—lacking a frame in which to relate the hand and finger—were trying to follow the turning hand and thus were more confused the more the hand was turned.

### IQ Correlation

Another class of evidence indicating that the congenitally blind have no frame of reference is the tendency in many studies for spatial performance of the congenitally blind to correlate more highly with IQ than spatial performance of the sighted does. (These studies include Duncan, 1934, Knotts & Miles, 1929, and Ewart & Carp, 1963.) This result indicates that the congenitally blind perform better if they have better verbal-conceptual abilities with which to conceive of spatial relationships. The sighted can use their frame of reference and thus have no need to rely on verbal-conceptual abilities.

Finally, studies reveal that performance of the blind in many tasks is related to the amount of prior visual experience. The congenitally blind (those blinded at birth or soon



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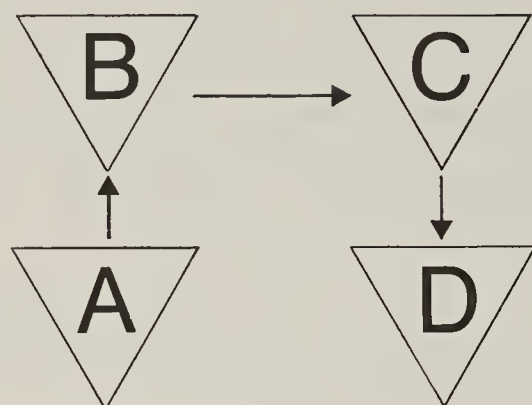
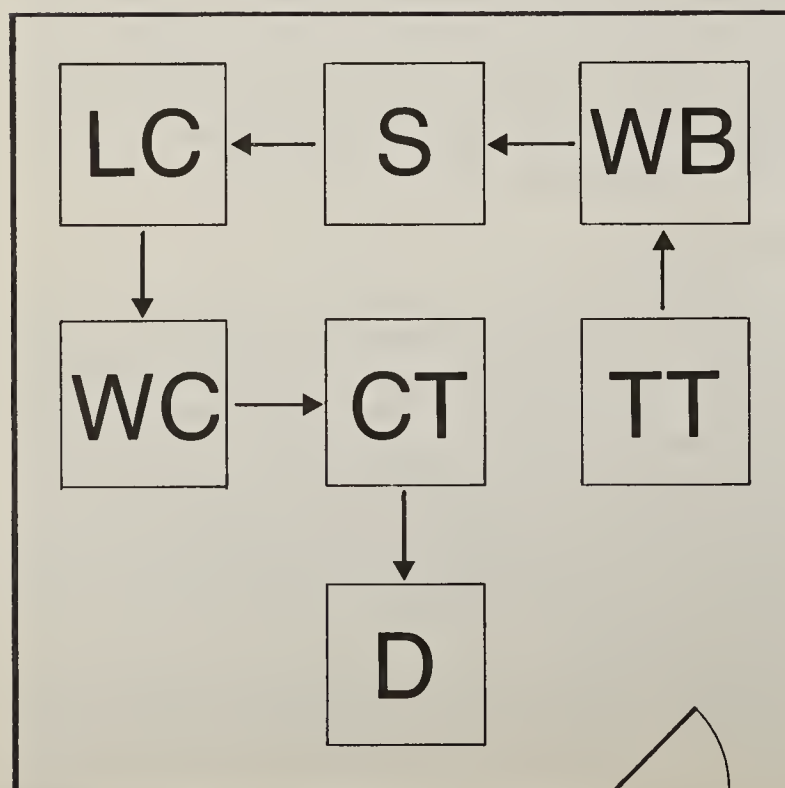


Figure 1. Simple example of synthesis question.

Figure 2. Sample room description and accompanying questions.

- S - Sofa
- WB - Waste basket
- D - Desk
- TT - Table with telephone on it
- CT - Coffee table
- WC - Wooden chair
- LC - Lounge chair

XC



thereafter) are outperformed by the adventitiously blind (those blinded after age five or six) in a wide range of tasks reviewed by Warren and Pick (1973). These include form perception, maze learning, and following curved paths of various radii. Warren and Pick use this evidence to support the notion that early visual experience is crucial in the development of a frame of reference into which to relate stimuli. If this is the case, the sighted (and adventitiously blind) would have such a frame and the congenitally blind would not.

Warren and Pick encounter difficulty, however, in that some tasks seem to favor the *congenitally* blind. Cratty, Peterson, Harris, and Schoner (1968), for example, found walking in a straight line to be such a task. Warren and Pick explain that the frame of reference of the adventitiously blind has freed them from reliance on acute perceptual sensitivity, upon which the congenitally blind depend. Thus the congenitally blind become more sensitive and on some tasks this skill is more useful than the adventitiously blinded person's frame of reference. This explanation must be viewed with skepticism, since it could conveniently be applied to any results that are not in conformity with their theory.

The conclusion of Warren and Pick is, however, supported by other researchers. One example is an experiment by Swallow and Poulsen (1973) using low-vision teenage girls. According to a series of Piagetian tasks, they had no concept of spatial relationships at the concrete operational level—the level on which a frame of reference would operate. Apparently the subjects' lack of visual information hindered their development of a frame of reference. There is of course a possibility, as Juurmaa would no doubt argue, that at a later age such a frame would develop. The fact that some of the girls were as old as 18, however, argues against such a possibility.

Juurmaa (1973) concludes that the congenitally blind do develop a frame identical to that of the sighted. We report here an experiment that examines Juurmaa's conclusion by examining whether or not the congenitally blind can form a two-dimensional symbol structure of a two-dimensional furniture arrangement, presented to them in a one-dimensional manner.

**METHODS** Subjects (Ss) consisted of the following three groups: 1) S1 and S2: two male, sighted, Carnegie-Mellon undergraduates, 2) S3-S6: four congenitally blind female subjects, age 17-32, 3) S7-S9: three adventitiously blind subjects, two male and one female, aged 21-31. All blind subjects were contacted through the Pennsylvania Association for the Blind.

## Procedure

Each of the subjects was given a room memorization task and the 45-item vocabulary test from the Stanford-Binet IQ test. The vocabulary test correlates highly with a large number of variables, including verbal skill and general intelligence.

In the room memorization task, the experimenter presented a verbal description of an eight-piece furniture arrangement. The subject then described it back to the experimenter with the experimenter making corrections until the subject could describe it without errors, and finally the experimenter asked the subject a series of questions about the arrangement.

Four different conditions (four different ways of describing furniture arrangements) were used, but all arrangements were similar in many respects. Each included a door and



seven familiar pieces of furniture: a large lounge chair, a waste basket, a desk, a small wooden chair, a sofa, a small table with telephone, and a large coffee table. Eight items were used so that with the relationships between them, there is no way that a subject could store the entire room in short-term memory (STM), especially since no arrangements were familiar or even reasonable for a real room—thus limiting opportunities for “chunking.” This hopefully forced the subject to use LTM, the symbol structures of which we were intending to study.

The presentation rate of the room descriptions was determined by a subject’s speed of fixation in LTM, thus assuring that each room was accurately stored by the subject. Results on questions requiring only memory of the arrangement as it was presented by the experimenter indicate that every subject *did* store the rooms accurately.

The four conditions differed in the way the experimenter described the arrangements. To create the conditions XC (X and C), -XC (C and not X), X-C (X and not C), and -X-C (neither X nor C), two variables were manipulated: X vs. -X and C vs. -C.

X vs. -X — explicitly linked arrangements vs. arrangements linked by the experimenter describing the furniture along a hypothetical path around the room. Furniture in the X conditions were linked by the four relations ahead of, back from, to the left of, and to the right of. The -X conditions used such phrasing as “now turn left and as you walk forward you pass the sofa on your right.”

C vs. -C —The other variable was presenting the room with or without reference to corners, walls, and the concept “middle of the room.” In the C condition such references were made, while in -C they were not. We hypothesized that those subjects who normally used one-dimensional symbol structures might be able to build a two-dimensional structure if the corners in which to build it were provided by the experimenter.

Each subject was presented with each of the four possible conditions. The study was largely exploratory and thus the experimenter took considerable freedom in varying the order of presentation of conditions and even cut off the experiment for some subjects if a subject was fatiguing and had already given clear results.

**QUESTIONS** Eight different types of questions were asked, including the first question, “please describe the room.” The remaining seven were divided into three groups:

A. Questions 2 and 3 were “memory questions,” which required a subject only to recall information the experimenter presented explicitly. Thus “what is ahead of the desk?” is a memory question if in the experimenter’s description he said the sofa was ahead of the desk.

B. Questions 5 through 8 were “synthesis questions,” requiring a subject to synthesize the information presented by the experimenter and thus be aware of relationships not explicitly presented. Question 5 called for knowledge of the relationship A-D in Figure 1, where A-B, B-C, and C-D were explicitly presented. To possess the knowledge without transforming the experimenter’s one-dimensional description into a two-dimensional structure would require retracing through three relationships. Question 6 was identical but called for a retrace of seven. Questions 7 and 8 were open-ended, with Question 7 asking for the shortest path between two items whose relationship the experimenter did not specify, and Question 8 simply asking where an item was located.

C. Question 4 was an intermediate case requiring a very

limited amount of synthesis. It called for knowledge of a relationship the opposite of which was presented by the experimenter.

It was thought that the memory questions tested subjects’ storage of the furniture arrangements as presented. Perfect performance on these questions could be achieved with nothing more than a one-dimensional symbol structure of symbols (representing the pieces of furniture) connected by the relations left, right, back from, and ahead of, just as presented by the experimenter.

Performance on the synthesis questions conceivably could be accurate if a subject had only a one-dimensional storage and analyzed it carefully. However, performance on these more difficult questions would be greatly facilitated—even to the point of equalling performance on the memory questions—if a subject could store the furniture in a two-dimensional symbol structure. With a two-dimensional structure, adjacent pieces of furniture that were not presented together would be quickly discerned by a subject as being adjacent. The subject would merely access his two-dimensional “map” of the room, on which all relationships would be stored implicitly. This access would be no more complex an operation for those relations implied by the experimenter than for those the experimenter described explicitly. “Possessing a frame of reference” is considered here to be the equivalent of possessing the ability to store the furniture items in a two-dimensional symbol structure and thus access the implied relationships as readily as those given explicitly in the experimenter’s description of the room.

Figure 2 is an example of a room description and accompanying questions. The sample room is of the XC condition.

The door is in the back right corner of the room. A small table with a telephone on it is ahead of the door. Ahead of the small table with the telephone on it is a waste basket—in the far right corner of the room. To the left of the waste basket is a sofa. A big lounge chair is to the left of the sofa in the far left corner of the room. A small wooden chair is back from the big lounge chair. To the right of the small wooden chair is a large coffee table in the center of the room. Back from the large coffee table is the desk.

1. Please describe the room.
2. What is in the front left corner?
3. What is to the right of the small wooden chair?
4. What is to the right of the sofa?
5. What is ahead of the coffee table?
6. What is to the right of the desk?
7. What is the shortest way to get from the table with the telephone on it to the big lounge chair?
8. Where is the small wooden chair?

**RESULTS** The primary quantitative measure of the subjects’ performances is the proportion of each type of question (memory, Q4, and synthesis) answered correctly. Subjects will first be compared on this measure. Then qualitative information, gleaned from the “thinking-aloud” protocols taken as the subjects responded, will be analyzed for an explanation of the quantitative results.

Since the performances of all but two subjects (S4 and S9) varied very little between conditions, results were analyzed across conditions. S4 and S9 will be discussed later.

Two variables account for much of the variance between subjects: 1) score on the vocabulary test and, 2) presence or absence of previous visual experience. Vocabulary test scores were divided into “high” (scores over 30 correct, out



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of 45 items) and “low” (scores of 30/45 or lower). Subjects with “previous visual experience” (the “P” group) include the sighted and those adventitiously blinded after age six. Subjects without such experience (the “-P” group) include only the congenitally blind. No subjects in our sample were blinded before age six.

The vocabulary and previous visual experience variables yield four groups of subjects: high P, low P, high -P, and low -P. Figure 3 presents the results for each of the groups on each of the three types of questions. The number of questions (N) in the cells are unequal because there were unequal numbers of subjects in the groups and because the questioning was modified for those subjects who were fatiguing during the test.

Nearly perfect performances on the memory questions for all subjects indicates that each subject understood the furniture arrangement at least in the one-dimensional manner in which it was presented by the experimenter. Results on the synthesis questions, however, form quite a different pattern. The low -P group shows only 25 percent accuracy while the other groups remain nearly perfect. As expected, in the intermediate case of Question 4, proportion correct for each group is between the proportions on the synthesis and memory questions.

The statistical significance of the difference between the low -P group and the other groups on the synthesis questions can be demonstrated in at least two ways. First, if one ranks the subjects’ “proportions correct” from least to greatest, the two subjects of the low -P group are ranked first and second. The probability of this occurring by chance is 0.028. A second statistical test applied was the Wilcoxon signed-ranks test. For those synthesis questions asked to both the low -P group and to the other groups, the low-P group responded significantly less accurately at a probability level of less than 0.01.

In explaining synthesis questions in the methods section, the notion was proposed that performance on the synthesis questions would be greatly facilitated by the ability to form a two-dimensional structure to represent a furniture arrangement. This notion is supported by the subjects “thinking-aloud” protocols.

## One-Dimensional Protocols

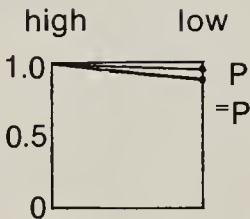
The protocols of S3 and S5, the two subjects in the low -P group, include many examples of a subject referring to the room in the one-dimensional manner in which the experimenter described it. For example, Question 7 in the -X-C condition asks for the shortest path, but at first S3 suggests that the shortest path is the roundabout one that the experimenter followed in describing the room. Similarly, S3 and S5 each frequently recite aloud the path the experimenter described as they think out answers to Questions 5 and 6 (Figure 3). Striking evidence of a one-dimensional structure came in S3’s response to Question 5 in the X-C condition. When asked what is ahead of the small wooden chair, S3 complained, “I didn’t know there was anything ahead of it...you have to turn right to find anything.” This is precisely correct if one were constrained to following the experimenter’s original path. A two-dimensional structure would eliminate this constraint and immediately reveal the correct answer. Instead, the correct answer required 53 seconds for S3—indicating she had to perform considerable analysis of her one-dimensional structure.

## Two-Dimensional Protocols

In sharp contrast to the above are the protocols of the other subjects. No other subjects ever refers to the path as the

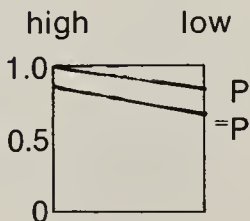
## MEMORY QUESTIONS

VISUAL EXPERIENCE \ VOCAB.	high	low
	high	low
P	1.0/10	0.95/20
=P	1.0/14	0.9/10



## QUESTION 4

VISUAL EXPERIENCE \ VOCAB.	high	low
	high	low
P	1.0/8	0.933/15
=P	0.923/13	0.67/9



## SYNTHESIS QUESTIONS

VISUAL EXPERIENCE \ VOCAB.	high	low
	high	low
P	1.0/24	0.80/46
=P	0.766/30	0.25/20

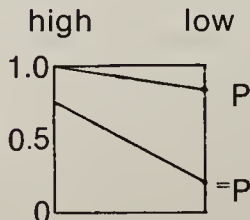


Figure 3. Porportion correct, by groups of subjects and types of questions. The four cells represent four groups of subjects. First number in each cell is porportion of questions answered correctly. The second number is the total number of questions asked in each cell (N).



experimenter described it, with the exception of S4 who will be discussed later. S1 (low P group) uses the terms north, south, east, and west to label the two dimensions of his two-dimensional "map" of the rooms. Subjects 6, 7, and 8 (high P and high -P groups) frequently use words such as "diagonal" and "middle" to describe relationships not given by the experimenter. Most impressively, S6 and S7 (high P and high -P groups) are able to change the distances mentally between objects and report to the experimenter the resulting changes in the objects' relationships.

The introspections of the subjects who are not in the low -P group support the above hints of two-dimensional structures. S2 (low P group) says he is "working out a map in a square." S6 (high -P group) claims to store the room "like a dollhouse, so I can imagine it all at once." She says she does this by "putting them in the order they are, instead of having to go all over the place as you (the experimenter) did." "Putting them in the order they are" is what we call forming a two-dimensional symbol structure.

### DEVELOPING TWO-DIMENSIONAL SYMBOLS

The qualitative evidence above strongly supports the hypothesis that the low -P group falters on the synthesis questions because of a failure to form a two-dimensional symbol structure to represent two-dimensional spatial relationships. This low -P group is also deficient on Question 4, in which subjects were asked for a relationship the reverse of which had been presented by the experimenter. A likely explanation would be that their one-dimensional structures are also one-way; that is, relationships are more easily accessed in the direction in which they were stored.

This explanation for the Question 4 results is supported by the protocols. S3 of the low -P group was asked to describe the -X-C room to the experimenter as it had been presented, first forward and then backward. The backward description required 120 seconds versus 40 seconds for the forward one. It is as if S3's one-dimensional structure were like the structure most humans use to store the alphabet, with asymmetrical relationships that force a time-consuming conversion process in reciting the list backwards. This indication is reinforced by the reaction times for Question 4, which were higher for subjects of the low -P group than they were for any other subject.

The proportion correct and verbal protocol data allow us to infer that low -P subjects stored the furniture arrangements in one-dimensional, asymmetrical symbol structures while the other subjects constructed two-dimensional symbol structures. This inference would be further strengthened if all subjects outside the low -P group responded with 100 percent accuracy. Only two of these subjects fall short of 100 percent: S4 of the high -P group and S9 of the low P group. In each case there are factors which explain their deficiency without modifying the above inference.

S4's accuracy was 100 percent when she was presented with the XC condition, the condition in which corners are most explicitly included. Apparently corners provided a two-dimensional "frame" in which S4 could place the furniture. Without such a frame, she was limited to a one-dimensional structure. This hypothesis is supported by S4's protocol, which sounds very much like the protocols of the low -P subjects in all conditions except XC, in which it sounds much like those of the other groups of subjects. Perhaps S4 is a congenitally blind person who is in the process of developing the ability to form two-dimensional structures. S6, the one congenitally blind subject who

clearly possesses this ability, reported that until late in her college years she could not have done our task the way she did. This notion that ability to form two-dimensional structures is being developed by S4 and has been developed by S6 is consistent with the vocabulary scores of the congenitally blind subjects. The two who showed no sign of ability to form two-dimensional structures (S3 and S5) had strikingly lower vocabulary scores than did S4 and S6. Since vocabulary score is related to general mental development, the developmental notion predicts that the low-vocabulary congenitally blind would be behind in the development of the ability to form two-dimensional structures.

S9 is the other subject outside the low -P group to fall short of 100 percent accuracy on the synthesis questions. However, in half of the conditions presented to him, he did respond with 100 percent accuracy. This variance between conditions is not systematic (is apparently not due to either corners or explicitness of the links), but rather seems to be caused by severe confusion which strikes unpredictably. It seems that he does possess the ability to form two-dimensional structures, but at unpredictable intervals he fails at some other stage in the processing necessary to perform the task. To claim that S9 has only one-dimensional symbol structure capability, one would have to explain his fast and accurate performance in answering synthesis questions on half of the rooms presented.

**DISCUSSION** If one accepts the above reasoning, then the following conclusions could be drawn:

1. Every subject with previous visual experience (the P groups; sighted and adventitiously blind subjects) possesses the ability to form two-dimensional symbol structures when presented with two-dimensional furniture arrangements described in a one-dimensional manner.

2. Subjects with no previous visual experience (the -P groups; congenitally blind subjects) can develop this ability, and are more likely to have done so if they have high vocabulary scores.

3. Until -P subjects do develop the two-dimensional ability, they are limited to one-dimensional and asymmetrical symbol structures in their representations of two-dimensional furniture arrangements described in a one-dimensional manner.

4. Subjects limited to one-dimensional symbol structures may nevertheless be aware of the two-dimensionality of the arrangement represented by their one-dimensional structure.

The above conclusions rest on data obtained from only nine subjects, yet they can be drawn with confidence because of the dramatic differences in the accuracy of their responses and in their verbal protocols.

The conclusions are consistent with the belief that experience with visual modality perceptual symbol structures is helpful in the development of a "frame of reference." Possession of a "frame" is essentially possession of the ability to form two-dimensional structures, an ability which this study shows to be related to previous visual experience. It can thus be inferred that experience in the visual modality is helpful in the development of a "frame of reference." Further studies involving adventitiously blind subjects with varying ages of onset of blindness would shed light on the question of when this development occurs in sighted people.

The present experiment also has implications for Juurmaa's conclusion that the congenitally blind all eventually develop frames of reference of the sort possessed by people



with previous visual experience. Half of our congenitally blind subjects (the low -P group) had not yet begun any such development. Both were beyond adolescence, which is the age by which Juurmaa implies a frame would have been developed. Juurmaa may have to qualify his conclusion by saying that only those congenitally blind with sufficient general intelligence will eventually combine nonvisual symbol structures in such a way so as to develop a frame. Further study of Juurmaa's conclusion could focus on a longitudinal examination of congenitally blind subjects as they develop—or fail to develop—frames of reference. The present experiment indicates that vocabulary skill or general intelligence would be a potentially important independent variable in such a study.

We would like to thank Dr. Herbert Simon, CMU, for his assistance with this study, and Dennis Huber, Joan Madden, and Larry Chuhu of the Pittsburgh Branch of the Pennsylvania Association for the Blind for their help.

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## Photocoagulation Treatment for Diabetic Retinopathy

According to HEW's National Eye Institute, new evidence shows that treatment with powerful beams of light can substantially reduce the risk of blindness for some persons with diabetic retinopathy. The evidence comes from cumulative analysis of data collected for more than two years in the NEI-funded Diabetic Retinopathy Study (DRS). The DRS is evaluating the safety and effectiveness of two forms of photocoagulation treatment for diabetic retinopathy—the green argon laser and the white xenon arc light beams—in reducing the risk of severe visual loss from this disease. Over 1,720 patients and 16 U.S. medical centers are participating in the 10-year investigation.

There is now clear evidence that treatment reduces the risk of blindness when diabetic retinopathy has reached a moderately severe stage. Photocoagulation reduces by more than half the risk of blindness in eyes with extensive new blood vessels on or near the optic disc, the place where the optic nerve meets the retina. Treatment can also reduce the risk of blindness for eyes which have hemorrhage in the vitreous fluid and either early new vessels on or near the optic disc, or extensive new vessels away from the optic disc.

After two years of follow-up, the great majority of persons in the study, whether treated or untreated, did not go blind. However, the percentage of blindness was significantly greater among untreated eyes (16.3%) than among treated eyes (6.4%). (Because of uncertainty regarding the eventual results of treatment, only one eye of each person was treated.)

Certain drawbacks of photocoagulation have also been found. In some persons, moderate impairment of visual acuity and narrowing of the visual field occurred in the treated eye. Follow-up thus far shows that the loss in sharp, central vision has been temporary in some individuals but has persisted in others. However, physicians believe that these harmful effects of photocoagulation in eyes with moderately severe retinopathy are outweighed by the reduced risk of blindness.

All DRS patients have been informed of these findings and are being re-examined to determine the desirability of photocoagulation treatment for their untreated eyes. These persons have been asked to remain in the study in order that follow-up may continue.

A paper presenting the data and other scientific and ethical considerations underlying this announcement appeared in the April 1976 issue of the *American Journal of Ophthalmology*.

# A Concept Development Program for Future Mobility Training

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**Abstract:** *A concept development program to prepare first and second grade blind children for future mobility training was established at the Illinois Braille and Sight Saving School in Jacksonville, Illinois. The initial concept work included working in a group setting to improve the body imagery, spatial concepts, and organizational ability of the six students in the class. Two orientation and mobility specialists then worked with the students on an individual basis to teach them routes of travel on the campus. Guidelines followed, material used, and observations from operating such a program for three years are presented.*

■ The following is a description of the concept development program for first and second grade blind students at the Illinois Braille and Sight Saving School in Jacksonville, Illinois. The program described in this paper was implemented during the 1974-1975 school year. The orientation and mobility staff felt that a modified form of orientation and mobility with an emphasis on the orientation aspect could be taught to the young children. The program proved to be most successful. The concept development class not only began to prepare the young blind children for future mobility training, but it also prepared the students in other developmental areas. The concepts that are essential for independent travel for the blind child are also the necessary building blocks for education and life itself. Listed below are the primary reasons why such a concept program was considered important for the younger age blind child.

## **BASIS FOR THE PROGRAM**

1. Current research on formalized programs of motor activity in early and preschool years has shown that when combined directly with games and movements academic operations such as spelling, letter recognition, reading, etc., were improved by the movement experiences (Cratty, 1971).

2. A blind child has to have the ability to organize his environment in a meaningful manner (orientation ability), or he will not be able to travel independently. He begins to develop this ability at a very early age.

3. Before the blind child can explore his environment meaningfully, he must first know his body parts and their function. He must first organize himself, then he can begin to organize his immediate environment and make sense out of it. The development and use of body image concepts frees the child from the domination of his physical environment (Cratty, 1971; Lydon & McGraw, 1973).

4. A good knowledge of spatial awareness (the formation of concepts of position, location, direction, and distance) is required before the blind child can learn the system of independent travel as taught by an orientation and mobility specialist. When the blind child enters orientation and mobility training somewhere in the sixth, seventh, or eighth grade, it is too late to begin teaching concepts that should have been incorporated years before in his preschool experience and elementary education. It is almost impossible to go back and try to help a child "make up" for experiences that he may have missed (Braley, Konicki, & Leedy, 1968). Piaget says that if concepts have not been introduced and learned at the maturational stage at which they are ready to be learned, they are lost (Hall, 1970).

5. The development of space concepts and spatial awareness is much more important for the blind child than the sighted child. Through visual checking, the sighted child will automatically develop space concepts to the point where he can travel without assistance (Kooyman, 1967). The blind child, unless given the opportunity to explore when young, will not automatically develop them. The sighted child will be able to travel independently with a poor degree of spatial awareness. For the blind child with poor space concepts, independent travel is not possible.

6. "It is unrealistic to expect a blind child, in the absence of efficient space organizers (the eyes), to organize and learn about space without a thorough and systematic effort made to educate him about the dimensions of himself and of his world" (Cratty, 1971). To insure that the blind child develops the ability to organize space and orient himself, he



## **“The first and second grade is not too early to start concept development training for mobility. It is almost too late.”**

should begin a structured motor activities program, with a heavy emphasis on activities and exercises to develop spatial awareness, as soon as he enters the educational setting.

**COMPOSITION OF CLASS AND LESSONS** The class was comprised of six first and second graders from a braille class. Five of the students were totally blind, and one had very limited travel vision. There were three first graders and three second graders. Two orientation and mobility specialists worked with the class two periods a week, the periods consisting of 50 minutes each.

The first 11 periods of instruction were devoted to group work covering hundreds of small tasks, exercises, and motor activities. In the beginning, the students as a group had a poor command of spatial terms and their immediate environment. Some didn't know the names of various parts of their bodies or the difference between right and left.

The instructor's vocabulary was heavily weighted with spatial terms, and questions were asked that stimulated the students into thinking about the organization of their immediate environment. Through the activities presented, the students were taught to first organize themselves (body imagery), then, in order of complexity, to organize the desks in front of them, various objects on the desk, objects in the room in relation to the desk, and the four walls of the room in relation to where they were sitting. During the exercise they were required to use the spatial terms they had learned. Some examples of the tasks required of the students were: "Place the cup so that it touches the top side of the desk." "Touch the lower left corner with the cup." "Touch the right side of the desk with your left hand." "Touch the side of the desk that is closest to the wall of the room that has the door." The students were given the opportunity to establish a meaningful relationship between themselves, various objects in the room, and the four walls of the room. This work was concluded with a simulated treasure hunt, by having individual class members locate various objects in the room.

### **Keeping Students' Interest**

A number of activities and lessons were planned for each period. When the class began to fidget and lose interest in one activity, another one was immediately introduced. Instruction was stopped many times to pursue areas that were unfamiliar to the students. Quite often most of the class would understand, but one student wouldn't. One instructor would take the student aside and work with him individually on the problem area, while the rest of the class continued with the lesson.

An example of one class is as follows: work with cardinal directions—five minutes, identification of body parts—ten minutes, practice of turns and facing movements—ten minutes, room familiarization—ten minutes, and the performance of various motor activities and the playing of games that incorporated all the above areas—twenty-five minutes. A brief time every class period was always devoted to work with directions and facing movements.

**CAR FAMILIARIZATION** Another area covered during group work was car familiarization. Most of the class knew nothing about a car except that it had a seat and that they sat on the seat while mom or dad drove the car. A car was used to incorporate spatial concepts into a practical learning experience. The students were given an opportunity to explore the accessible parts of a car. Their tactual exploration was accompanied by a verbal explanation from the instructors. Emphasis was placed on left and right headlights and tail lights, left and right windshield wipers, left and right doors, driver and passenger side, tires on the left and right side, the top and bottom of the car, and the front and back of the car and what was located there.

The students were given assignments to locate various parts of the car. They also had to locate designated doors from different starting places on the car's exterior. The following is an example of what they were asked to do. "You are standing at the trunk of the car. Locate the door to the front seat on the passenger side."

The same process was repeated with the interior of the car. While the students were sitting in the car, questions were asked like, "Where is the trunk of the car located from where you are sitting—front, back, left, or right?" This was repeated for all parts of the car. Next the class was taken for a short ride and each had to tell when the car was turning left or right, and whether it was going in a forward or reverse gear. The lesson with the car not only helped the students to learn the parts of a car, but it gave them a chance to use spatial concepts to organize their environment.

### **Street Familiarization**

Several walks were taken off the campus. The students were given the opportunity to experience the following: a street, railroad tracks, street sign, street crossing, gutter, fireplug, light pole, corner, curb, driveway, sewer grates, and mail box. Spatial terms were used when appropriate. The students had to tell in what relation their bodies were to the sounds of passing cars, using the many space concepts they had learned in the classroom.

**ON-CAMPUS TRAVEL ROUTES** Individual work was begun with the students after the 11th hour of group instruction. The instructors felt that at this time the students were ready to begin learning routes of travel on the campus. To attempt to teach the class routes of travel as a group would have met with disaster. Each student was at a different conceptual level in regard to his travel ability. No matter which student the instructors geared the lessons to, the others in the class would have been either ahead of or behind him conceptually, and mass confusion would have resulted. Group work to teach routes of travel had been tried by the mobility specialists the previous two years in the lower elementary grades. It was like trying to teach a class of seven students at the same time using seven different texts in seven different languages.

The student with remaining travel vision was dropped from instruction along with another student. Both had no problem with independent travel on campus. Individual instruction was then given to the remaining students on a twenty-five minute basis, twice a week for seven weeks. In that period of time, the improvement in each student's travel ability and knowledge of his environment was noteworthy. All but one student learned routes of travel on the campus that would satisfy their immediate needs—routes from the



dormitory to the classroom, the dormitory to the dining room, and the dormitory to the gymnasium. The student that didn't learn the routes of travel probably had a better learning experience than the five who did. She became better oriented in her classroom and the dormitory, and learned to travel from her classroom door on the second floor to the door exiting the building on the first floor. The route from the dorm to the classroom building was practiced, but she couldn't quite learn it. The class had been good for her, though. The world no longer stopped at her body.

**GOALS AND TECHNIQUES** This was the third year of operating such a program. Each year the goals and techniques of teaching the class changed. Through trial and experience, the instructors feel that now the program has finally reached the level where it is preparing young first and second grade blind children for future orientation and mobility training in the best possible manner. For such a concept program to be really effective, it should be an ongoing process with the teacher and orientation and mobility specialist working hand in hand at every grade level. The following are observations gathered from three years of operating a concept development program.

1. Readiness for future mobility training should be a part of the academic program for a short period everyday.

2. The classroom teacher must cooperate and be involved to make the program effective.

3. The first and second grade is not too early to start concept development training for mobility. It is almost too late.

4. The first and second grade blind child has the ability to understand and use cardinal directions.

5. The first grade blind child is not too young to learn an independent route of travel if the instruction is geared to his conceptual level. He should receive a limited amount of one-to-one instruction from an orientation and mobility specialist.

6. A young blind child can do very poorly on a spatial awareness test, but still have a good knowledge of space concepts. He can have an internal non-language awareness of space concepts that he can learn to match with the verbal counterparts.

7. With even as small a group as six children, one instructor is not enough for concept work. Two instructors are a minimum.

8. Only a limited amount of concept training can be taught in a group setting. If it is continued after a saturation point, the students will rebel and lose interest. What will be a learning experience for one, will be dull repetition for others.

9. If the developmental level of the blind child is surpassed when trying to teach him a route of travel, a concept, or familiarization to a new area, he will become more confused than he was before he started, and he may lose any initiative that he had in the first place.

10. The younger blind child won't become a proficient traveler within a few weeks, a month, or even a year. He will make mistakes and get lost. No student becomes proficient in any other subject in this period of time. He will gradually improve his travel ability throughout the elementary and high school grades.

11. Young blind children are eager to learn about the physical construct of their world. This learning should not be work or study to them, but play. It can be made fun if the instructor is creative. Teachers and adults can unknowingly place roadblocks on learning about the environment.

12. Never substitute a verbal explanation or tactual model for a real experience. If possible, when explaining a concept accompany the explanation with a physical demonstration or a tactual-kinesthetic experience. An abstract concept will be made clearer if it is prefaced by a concrete example.

13. Many motor activities devised for sighted children can easily be adapted for blind children. A majority of the material used in this program for group work wasn't originally devised for blind children.

14. A concept development program cannot function at the maximum level unless it is accepted jointly by the classroom teacher, the gym teacher, and the mobility specialist; most importantly, the administration must recognize its importance and mandate its implementation into the overall program.

15. Preparation programs for teachers of the visually handicapped need to stress the importance of teaching motor activities and spatial awareness skills to blind children. Until these are incorporated into their early education blind children will not have the opportunity to develop their travel ability to its fullest potential.

**MATERIALS** The following materials were used as guidelines for the group work. It should be emphasized that the materials were used *only* as a guideline. Numbers five and six are standard assessment tools used by orientation and mobility specialists. However, they were used more as teaching guides than as assessment tools. Any attempt to follow the listed materials verbatim would have failed. In order to make the materials work, a knowledge of how blind children organize and learn about their environment is needed.

1. *Daily Sensorimotor Training Activities: A Handbook For Teachers and Parents of Pre-School Children*, by William T. Braley, Geraldine Konicki, & Catherine Leedy. Educational Activities, Inc.

2. *Listening and Moving Album Series*, by Dorothy B. Carr and Bryant J. Cratty. Educational Activities, Inc. a) LP 605 "The Development of Body Awareness and Position in Space." b) LP 606-7 "Developing the Perceptual-Motor Abilities of Primary Level Children."

3. *Sensorimotor Training in the Classroom*. LP Album-Grades K-3, by Linda Williams and Donna Wemple. Educational Activities, Inc.

4. *Sensory-Motor Training Activities* (A readiness for further orientation and mobility training) compiled by Donna Grupp. Iowa Braille and Sight Saving School.

5. *Body Image Evaluation Form* (An assessment tool for blind children) by Bryant J. Cratty and Theresa A. Sams.

6. *Hill's Basic Concepts Related to Orientation and Mobility*. Everett Hill.

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# Some Functions of Active Handling: Studies with Blinded Humans

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**Abstract:** *A review of a five-year research into the characteristics of effective search strategies and the contribution made by exploratory scanning to accurate perception, involving comparisons of blind and sighted individuals performing shape matching tasks by hand. Videotaping of hand movements combined with accuracy data in the experiments revealed that exploratory activity functions to focus attention and encode stimulus information so that what is learned and remembered about a shape is influenced by how it is explored. Exploratory activity seems to become more proficient and economical with experience, suggesting that the more accurate haptic perception of shape by blinded individuals might be linked to perceptual learning of better ways to explore the stimulus. Findings are considered in terms of implications for future research, especially in the area of braille reading.*

■ In recent years, a number of experiments have related accurate shape perception to the way the object is searched. The more effective the search, the more accurate the prehension in perceptual systems involving receptors which can scan the stimulus array, touch and vision. Inasmuch as exploratory search must certainly serve as a major determinant mechanism for selective attention, its understanding should help to clarify the nature of encoding processes in those modalities where search is possible. For this reason, many experimenters have begun to examine this variable.

Theory and research on exploratory search have attempted to answer two general questions. First, what constitutes an effective search strategy, and second, what is the contribution made by exploratory search to accurate perception. These questions are by no means mutually exclusive. Indeed, understanding of how the search strategy relates to the stimulus is necessary for describing what the strategy is accomplishing.

Although relatively little is known about answers to either question, some hypotheses are emerging which seem to have a consistent basis in converging experiments and appear to be general to most perceptual systems. These hypotheses and some of the data supporting them in detail were reviewed earlier (Davidson, 1972b), and in summary reveal that the effectiveness of search seems to depend not just on the search style itself nor on the nature of the stimulus itself, but on an interaction between them. Hence, the same search strategy might be effective for one stimulus attribute but not for another. Further examination of the interaction suggested something about the role of exploratory search in perception: the major determinants of whether a strategy will be effective seem to be how well the strategy focuses on the relevant stimulus attribute, and how well the attribute can be encoded. Effectiveness of search appears to vary with perceptual experience, suggesting that exploratory activity might represent one mechanism for perceptual learning.

**RESEARCH SUMMARY** Aside from these generalizations, little else is known. We undertake here to summarize a five-year research project examining the functions of exploratory search suggested by the above hypotheses. The focus of the program was a comparison of haptic shape perception by congenitally blind and sighted humans. Haptics were studied in large part because hand movements are easily observed, recorded, and classified, and past research has shown that they can also be quite reliably quantified (Abravanel, 1968). The interest in comparing normally sighted individuals with the sightless stemmed from two sources. First, the blind represent a population highly experienced in gathering information with the hand, and sometimes show more accurate haptic perception than less experienced, sighted persons. If experience and exploratory search-strategy selection and use are related, we would expect to observe differences in search style between these two populations. Our aim was to relate such differences to perceptual accuracy. Second, we were specifically aware that the superior perception by blind persons of one particular geometric form property—curvature—might be related to search style, and this evidence provided our starting point.

Only one extensive study of curvature perception by blind and sighted humans had been reported (Hunter, 1954), although others had investigated the problem in a more preliminary way earlier (Blumenfeld, 1937; Crewdson & Zangwill, 1940; Rubin, 1936). The task involved present-



ing participants with a series of convex and concave curves which they classified as "convex," "concave," or "straight." The curvature stimulus consisted of a flexed ruler that could be varied in degree of curvature in the transverse plane.

Hunter's (1954) main finding was that psychophysical straightness (the stimulus most often judged as "straight") was a concave curve for both the sighted and blind; but that blind persons' judgments more closely approximated objective straightness and were less variable than sighted persons' judgments. Hunter's data did not reveal any concrete reason for the outcome.

### Videotaping Hand Movements

The first series of experiments (Davidson, 1972a) began with a replication of Hunter's (1954) procedures, but in addition we videotaped the hand movements of the blind and sighted subjects as they scanned each curve. An earlier experiment evinced that the way a curvature stimulus is felt can influence perceptual accuracy (Goodnow, Baum, and Davidson, 1971). Therefore, we felt that this factor might account for differences between the blind and sighted reported by Hunter (1954).

Our accuracy paralleled Hunter's findings that blind persons made more accurate and less variable categorizations than did the sighted. In addition, our data showed that the inaccuracy of both groups stemmed from a confusion of concave curves with the straight stimulus, while no subject made more than a few errors in categorizing convex curves.

**STRATEGIES** The videotapings of hand movements revealed three frequently used strategies. The first, *gripping*, was used more frequently by the blind and rarely appeared in the judgments of the sighted. It consisted of using all of the fingers to span the front edge of the stimulus (the edge facing away from the individual) and pulling back against the curve while shifting the hand back and forth. The two other methods, *pinching* and *top sweeping*, were observed predominantly in sighted subjects' judgments and less often among the blind. Both strategies involved using one or two fingers to explore the top edge of the stimulus, sweeping back and forth in a successive manner.

Since the observed relationship between accuracy differences and search-style differences was only correlational, further testing for a functional relationship was undertaken. The curvature judgment task was repeated, this time using different groups of sighted individuals, each group restricted to using only one of the above strategies. The outcome was striking. Sighted subjects restricted to gripping were as accurate as the blind subjects in our initial experiment. Those using the other two strategies were equally as inaccurate as the sighted subjects in the earlier study.

Although these experiments demonstrated a functional link between accurate curvature perception and exploratory search-style, we still did not know what search style might contribute to accuracy. Strategy in the final experiment of this series was to look for the source of the judgment errors in curvature perception which might underscore what was required for accurate judgments and, coincidentally, what scanning would have to prehend for such accuracy.

Our hypothesis was that the source of the error involved the correspondence between the arcs described by a concave curve and the radial sweep of the arm. Since these arcs are similar, the movement might mask the stimulus, obscuring curvature information. To test this argument, we used

the curvature categorization task again, but this time attempted to reduce the correspondence. The stimulus presented for judgment was curved in the frontal plane. The errors made by sighted subjects were greatly reduced, suggesting that the masking effect was probably the source of the error to begin with. This finding also intimated that a search strategy associated with accurate curvature judgments probably would also have to reduce the masking effect.

### Gripping

Judging the three scanning strategies in terms of their contribution of information, we concluded that gripping was the only one which reduced the correspondence between arm movement and concave stimulus shape; the other methods appeared to maximize the correspondence. Gripping focused attention on the front edge of the curve, an aspect which could be kinesthetically triangulated, whereas the remaining methods focused on the top edge, similar in plan and shape to the radial arm sweep. It appeared then that search was performing an attention-focusing function which interacted with style.

A second characteristic of gripping was simultaneous prehension of the stimulus curve; the other strategies allowed only successive prehension. In the case of curvature, a relationship among points, simultaneous prehension probably precludes further perceptual integration; successive methods may force the integration of temporally and spatially punctuate inputs in memory. Hence, it appeared that search might also perform a patterning, or encoding function, again involving an interaction with style.

Although previous researchers have postulated both of these functions for exploratory search (Davidson, 1972b; Gibson, 1962; Zinchenko & Lomov, 1960), only the first—attention-focusing—has been documented (Davidson, 1972b). The encoding function, however, has not been examined and our subsequent experiments involved that variable.

**SCANNING** The notion that scanning might serve to encode haptic information is particularly intriguing and of potentially far-reaching importance. Given the obvious link between encoding and other memory processes (Atkinson & Schiffman, 1968), it could be that how accurately an object's shape information is stored and/or retrieved is related to how it is initially examined. Indeed, one tenet of Soviet theory (Zaphorzhets, 1965) suggests that the retrieval process is directly dependent upon the manual activities used to form the stored "motor copy" of the object. Given this hypothesis, we decided to approach the encoding function by looking for links between scanning style and haptic retention.

The first experiment along these lines (Davidson, Barnes, & Mullen, 1974) provided some tentative support for the notion that scanning could play an encoding role. Its main purpose was to show that haptic perceptual experience was directly related to retention of shape information gathered by the hand. We compared blind and sighted adolescents in a successive matching task involving the three-dimensional free-form solids series developed by Gibson (1962). Successive matching is a task with a retention requirement: the subject must remember the shape of the standard stimulus from the time of his initial exploration of it until it appears again as one of the alternatives in the comparison array. Moreover, our version of this task, developed originally by Jacqueline Goodnow (1971), varied the demand on haptic



## **“...use of an efficient scanning strategy can lead to better retention of haptic shape information. Experience in gathering information apparently plays a role in determining search strategies.”**

recognition memory by varying the number of alternatives appearing in the comparison array (either three or five stimuli); thus, the greater the comparison array size, the greater the burden placed on memory.

The results showed that blind and sighted subjects were about equally accurate when three stimuli comprised each comparison array. But with five solids in each array, the blind showed significantly better retention. Also, informal observations of scanning style revealed that blind subjects “...employed larger numbers of more varied scanning strategies per judgment than the sighted, probably yielding more information about the stimulus than sighted subjects’ search” (Davidson, et al, 1974, p. 396).

### **Retention Difference**

The Davidson, Barnes, and Mullen study revealed a retention difference between the blind and sighted which appeared related to differences in search style. However, the lack of quantification of search style left open the question of a functional link between search style and haptic memory.

We continued our investigation of this problem in a further series of studies (Davidson & Whitson, 1974), deciding to return to the curvature stimuli described earlier, again using the matching task to vary memory demand. The curves seemed ideal because we already knew that different strategies led to differential accuracy with no memory demand. If the difference was exaggerated by increasing memory demand, a functional link between style of search and haptic memory would be suggested.

### **Memory Demand**

The approach was to compare blind and sighted subjects while videotaping scanning style (Davidson, 1972a). The procedure, although repetitive, allowed assessment of the effects, if any, of the memory demand itself on scanning style. We knew from other work that certain task variables which might be indirectly related to task memory demand, i.e., stimulus positioning (Goodnow, Baum & Davidson, 1971), or exploration time (Davidson, Abbott, & Gershonfeld, 1974), can influence search style. Again the participants were adolescents, but this time we balanced the population and the experimental design for I.Q.

Results revealed that as task memory demand increased, blind subjects showed fewer errors than sighted subjects. Also, as in our earlier work, gripping was predominantly associated with the more accurate judgments of the blind subjects while pinching was associated with sighted subjects’ less accurate judgments. However, sighted subjects with the most exposure to the stimuli (those in the group judging five comparison stimuli per trial), showed an increased use of gripping and decreased use of other

methods compared to the other, less exposed, sighted subjects. In fact, there was no significant difference in scanning style comparing blind and sighted subjects who matched from five-curve comparison arrays. However, the blind subjects still maintained greater accuracy than the sighted subjects, although the error difference was less between those two groups than between blind and sighted subjects matching from three-curve arrays.

### **Retention**

To isolate the apparent link between retention and search style, groups of sighted subjects were restricted to using only one search style, and the curvature-matching task was repeated. As expected, the group restricted to gripping showed significantly fewer errors than other groups as memory demand increased. Also, the error difference between gripping and the other methods increased with increasing memory demand. The last finding is, of course, in contrast to the small decrease in error difference with increasing memory demand in the initial study with scanning options open to choice.

The results suggest that use of an efficient scanning strategy can lead to better retention of haptic shape information. Moreover, experience in gathering information haptically, either long-term (blind subjects), or short-term (sighted subjects exposed to large numbers of stimuli during the test session), apparently plays a role in determining selection of search strategies.

**CONCLUSIONS** Our findings suggest that haptic exploratory search functions to focus attention and to encode stimulus information. The mechanism underlying these effects is unclear from our data. However, results are consistent with the view that hand movements (Zinchenko & Lomov, 1960) and eye movements (Noton & Stark, 1971; Zinchenko & Lomov, 1960) serve to orient and map or construct an internal representation of a form for later reference. Indeed, Zaphorozhets (1965, p. 82) argued that “...orienting-exploratory movements investigate and form a copy—an adequate image of the object by reproducing its features or forming a likeness of it.” The better the method of search, the more objective the image and the better the judgment when the task involves a memory component.

Our results may help to clarify observations of deficits in intramodal haptic and crossmodal haptic-visual form matching by both adults (Davidson, Abbott & Gershonfeld, 1974; Goodnow, 1971) and young children (Davidson, Cambarrella, Stenerson & Carney, 1974; Milner & Bryant, 1968; Rose, Blank & Bridger, 1972) following task memory demand increases. Pointing out that no similar memory effects were observed in intramodal visual matching, these studies concluded that the deficits were probably a reflection of poor coding and storage of tactual information. Further, Goodnow (1971) suggested that the difficulty may lie in an inefficient use of haptics by individuals inexperienced in gathering information by hand. Our data seem to reinforce Goodnow’s proposal, showing that persons with extensive experience in haptic information pickup, such as congenitally blind individuals, are not as seriously affected by memory demand as less experienced persons, in large part due to their ways of exploring the stimulus.

### **Short-term Memory Characteristics**

The link we have shown between experience, immediate haptic recognition memory, and effectiveness of search ac-



tivity may shed light on previous results showing differences in short-term memory (STM) characteristics, comparing tactile-kinesthetic STM in blind and sighted subjects (Posner, 1967; Shagan, 1970; Shagan & Goodnow, 1973). Indeed, Shagan and Goodnow found that Posner's (1967) model of tactile-kinesthetic STM, differing from visual STM in its lack of central-processing-capacity requirements, did not hold for congenitally blind subjects. In a lever-moving task replicating Posner's procedures, Shagan & Goodnow's (1973) blind subjects showed STM coding characteristics resembling those of visual STM in the sighted. These findings taken together with our data suggest that differences in STM as a function of modality may stem from perceptual rather than central factors and that such differences are largely a result of differential experience in modality-specific information gathering.

#### **NEW HYPOTHESES AND FUTURE RESEARCH DIRECTIONS**

An important question posed by the link between scanning style and retention has to do with the role of such search in the patterning of stimulus information. We had argued that one possibility lay in the Soviet view suggesting that perceptual activity functioned to construct an internal image for later reference (cf. Zaphorzhets, 1965; Zinchenko & Lomov, 1960). By itself, however, this view does not go far enough. For example, it is unclear where the control over exploratory activity lies: is it simply a matter of conditional modifications in cortical electrical activity by the peripheral activity, as the Motor Copy theory implies, or is there some control exerted by the cognitive sphere? In other words, we need to know to what degree differences in search style reflect differences in the degree to which individuals impose subjective organization on the input—organize it or code it—for more efficient and durable storage.

Shagan's study of STM coding characteristics in blind and sighted subjects (Shagan, 1970; Shagan & Goodnow, 1973) sheds some light on the problem. Debriefing of her subjects following the lever-moving task to test kinesthetic retention revealed that blind subjects actively sought to encode positions of the lever by using movement-oriented cues, while the sighted subject relied more on kinesthetic sensations alone. One of the blind subjects' strategies was timing of their arm movement while shifting the lever from one point to another, deliberately attempting to maintain consistent movement speed. They also reported breaking down the distance traveled by the lever into numerous categories so that the times could be classified. Similar findings of deliberate attempts by blind subjects to use the fingers, hand, and arm as metric devices have been reported by Hatwell (1960) and Revesz (1950). Informal questioning of blind subjects in the Davidson, Barnes, and Mullen experiment (1974) revealed that almost all had deliberate strategies which they followed to explore the stimuli, whereas the sighted did not. These reports, however, are *post hoc* and must be regarded as tentative. Further empirical evaluation of the degree to which hand movements reflect cognitive coding strategies would be fruitful.

#### **Reading Behavior**

Another important implication of the relation between search and retention has to do with reading behavior. Recent research has shown that visual eye movements are important to accurate discrimination of letters (Nodine & Lang, 1971; Nodine & Steuerle, 1973). Moreover, blind

readers can be ranked for braille reading proficiency on the basis of their haptic scanning patterns (Critchley, 1953; Nolan & Kederis, 1969). Beyond this preliminary work, however, little has been learned about the role of exploratory activity in reading. A logical extension of the present project would be to examine the retention of information picked up either from braille (by the hand) or from print (by the eye) as a function of search style.

The link between search and retention also suggests that failures in exploratory activity and perceptual-cognitive dysfunctions coincident with certain brain lesions might be functionally related. Although the evidence regarding hand movements on this point is almost nonexistent, several experiments have tied disturbances of ocular movements—so-called optic ataxia—to occipital lesions producing simultanagnosia (Luria, Pravdina-Vinarskaya & Yarbuss, 1963). A recent report (Zangwill & Blakemore, 1972) linked disturbances in left-right ocular tracking to the reading difficulties of a person with dyslexia. Finally, Butters and Brody (1968) have related lesions in the angular gyrus area of the left parietal lobe in man to disturbances in cross-modal perception. Given the ties both we and others have shown between search style by hand and performance in such tasks, it may be that breakdowns in intersensory integration following association area lesions are contributed to by breakdowns in attention focusing and patterning rather than exclusively in the associative functions themselves.

#### **Eye Movements and Conservation**

On the behavioral level at least, eye movements have been directly linked to certain cognitive functions such as conservation. For example, O'Bryan and Boersma (1971) showed that decentration of eyes movements and the development of several types of conservation were correlated in children. It is important that such a relationship be examined in haptic perception, given the findings that blind subjects lag behind sighted subjects in the development of such behavior (Hatwell, 1966; Tobin, 1972). It may be that the developmental progress of blind children in learning these concepts could be improved with specific training in selective decentration of attention.

One important implication of the notion that scanning may be a perceptual learning mechanism is the possibility that differential experience in modality-specific information gathering may account in part for various differences in performance observed among perceptual systems. Our findings regarding scanning improvements with generalized haptic experience (as a result of congenital blindness) or specific short-term experience (as a result of practice at feeling the stimuli or performing the task) reveal a hint that modifications in selective attentional mechanisms may replace notions such as sensory compensation.

**TIME TO EXPLORE** Recently, we examined the variables of haptic perceptual experience in a study unrelated to the research being summarized here. Briefly, the experimenters (Davidson, Abbott, and Gershonfeld, 1974) studied the effects of "time to explore" on both accuracy and haptic scanning style of sighted subjects in a shape-matching task. The data revealed that increased time to explore led to an improvement in judgmental accuracy correlated with changes in search style which we think represented an improved economy of search. More specifically, those allotted more time-to-explore showed a greater variety of search strategies, apparently enabling them to gather more information from the stimulus. The finding suggests that haptic



experience may improve search style, at least in part, by modifying the subject's utilization of allotted time. Hence, efficiency of search and economy of search may be closely related in perceptual learning.

One possible conclusion from this idea is that, given the same task, blind and sighted subjects might be able to achieve the same level of haptic accuracy if time-to-explore were not an issue. Furthermore, in comparing the accuracy of sighted subjects in the present study with that of blind subjects performing the same task with the same stimuli in the Davidson, Barnes, and Mullen (1974) study reported earlier, we discovered that blind subjects required about half the time to explore each stimulus as the sighted subjects did to achieve the same accuracy level. A logical extension of the present research, then, might be to look first at differences between blind and sighted subjects in time utilization with regard to search behavior, and then to study the parameters of difference. Such an approach might reveal, for example, how the blind learn to overcome the specific temporal constraints of haptic perception placed on both information gathering and information retention by the serial nature of haptic input.

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# Education and Rehabilitation of the Visually Impaired in Latin America

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**Abstract:** *The author discusses education and rehabilitation of the blind in Latin America today, with reference to how visually impaired persons were educated in the past, and what must be done to meet their needs in the future. She believes that the first objective is that of obtaining good statistics on the number of blind persons in a given area so that programs can be planned with an awareness of the needs of the visually impaired population. Other objectives include teacher training, providing schools with the necessary books and other equipment, and extending services for the blind to include special programs for the multiply handicapped.*

**Note:** *This article is adapted from a paper presented by the author at an international congress on Coordinated European Efforts for the Blind in the Third World held in the Netherlands, October 1975.*

■ Latin America is an enormous continent. While to foreigners it is exotic and full of legend, if its problems are to be understood, a more realistic outlook is necessary. To begin with, a quick geographical presentation of this vast area is perhaps needed to explain and justify why we have had in the past and still have today so many difficulties in formulating suitable educational programs for blind children and young people.

Latin America covers a surface of 20,600,000 km, extending from Mexico, which is part of North America, to the southern tip of Argentina. There are 18 countries, two European colonies (French and Dutch), and a great many islands which give shape to the Caribbean Sea. In 1972 its very heterogeneous population was 432 million. In some countries, for example, Bolivia, Perú, and Mexico, there is a high percentage of Indians and above all, mixed groups, or mestizos. In others, like Brazil and the Caribbean countries, the number of blacks is very high, while in Argentina, Uruguay, and Chile, the largest groups are white people of European origin.

This so-called "melting pot" of races has actually resulted in a variety of cultures, which have, in turn, produced the different socio-economic levels. The values, aspirations, and prospects of the Indian and mestizo are not the same as those of the white people; life concepts do not follow the same patterns. Geography, economic difficulties, and problems of communication all hinder the development of vast regions of the continent where modern western civilization does not reach. Thus, there are enormous areas wholly isolated from the most progressive cities. Naturally, there are great urban centers like Buenos Aires, Sao Paulo, Caracas, and Mexico City, where most of the economically productive population lives. These cities are so powerful that they tend to "drain" or "absorb" resources that might otherwise be available to the less favored areas.

The language of the majority of Latin Americans is Spanish, but in Brazil one fourth of the population speaks Portuguese. Other languages include French and English, spoken in the colonies and Caribbean Islands, and of course, the Indian languages such as Inca, Nahuatl (Aztec), Guarani, and Maya.

If to these factors we add that of the lack of economic wealth and of technically and scientifically trained people with a knowledge of both the area that needs to be developed and the needs of its inhabitants, we may understand the present situation regarding the education of blind persons in Latin America.

**HISTORY** Education of the visually impaired in Latin America began at the turn of the 19th century with the establishment of residential schools following the European and American example. These schools were privately founded and remained in private hands for many years. Then, as today, they served less to educate than to protect and shelter the visually impaired, whom their voluntary personnel viewed as unskillful and in need of charity.

After some time, primarily because of the example set by other countries, where the blind persons were taught skills for daily living and employment, the concept of education as charity and protection began to change. Government began to assume responsibility for education of the visually impaired.

Even today not every Latin American country is aware of the value of the blind individual as a human being. Neither the time, nor the effort, nor the money are provided to



**“All too often we meet teachers whose only preparation for educating the blind is the knowledge of braille. As a result, children and adolescents are not able to learn skills of daily living to achieve independence.”**

develop sound programs with clear and accurate goals to enable blind children to grow up to lead normal and useful lives in their communities.

**THE PRESENT SITUATION** As American Foundation for Overseas Blind (AFOB) educational consultant for Latin America, I have been able to visit every country in the area, with the exception of some of the Caribbean regions. Most countries do have educational programs for visually impaired young people and a few even have facilities and agencies for the rehabilitation of adults. In some countries, the educational programs are developed with clear and definite goals, according to modern philosophy. In others, there is some concern and interest on the part of government and individuals regarding the organization of new programs or the improvement of those already in existence. However, there also exists a group of countries in which, despite the fact that they have had schools for the blind for many years, progress in program planning and implementation has slowed down or stopped entirely. In some cases, an actual regression has occurred regarding services.

Why these marked differences from country to country? They may be due to the degree of government support or to the interest, efficiency, and actual policies of those who plan and implement programs for the education and welfare of the visually handicapped. Another possible cause of differences in the quality of programs might be the training of the instructors of the blind themselves. Still other causes might include those stemming from societal attitudes: lack of understanding on the part of the blind person's family members; philanthropists who continue to protect the blind and offer them charity, perhaps because of their own needs to have persons dependent upon them; and lack of confidence in the blind individual's abilities and potentials as a human being.

### **Progress**

Despite what has been said, and although differences do exist from country to country, progress tends to be made in definite stages. At present there is within Latin America an almost universal desire to widen their range of services, to open up new opportunities to the blind, not only in the educational field but also in employment, including both professional and nonprofessional fields. There very definitely exists a desire, a wish to do “something,” an attitude that is perceived by the Latin America AFOB office in its communications with official institutions, private institutions, and individuals.

**EDUCATION** The economic problems of most Latin American countries must be considered for they affect directly or indirectly the budgets assigned to the field of education. With this in mind, we must be able to answer the

following questions regarding each country: 1) What minimum educational level is required? 2) What percentage of the people are illiterate and what is being done to diminish their number? 3) What percentage of the national budget is assigned to education? 4) What resources exist for the training of teachers and other personnel in the various educational fields?

The answers to these questions will lead teachers of the blind to consider objectively and without deceiving themselves, the possibilities of success in urging and, if necessary, demanding that the education of the blind be included in the general educational priorities of a given country. We know for a fact that education for the blind, in all its stages, should be a part of the nation's educational programming as a whole. If this programming does not exist or if there is no realistic way of carrying it out because of lack of money or manpower, it will be difficult, if not impossible to make educational programs available to the visually handicapped.

I feel that it is of value to enumerate the positive and negative aspects of education in Latin America as I have observed them during my frequent visits to several educational centers.

### **Positive Aspects**

Among the positive aspects are: 1) Growing knowledge of the blind person as an individual and therefore, acceptance of the problems presented by his education and rehabilitation. 2) Interest on the part of governments and institutions in running their programs for the blind according to modern techniques and procedures. 3) Wide acceptance of the recommendations and suggestions as to how to improve services made by international organizations. 4) Growing desire to offer integrated education. 5) Acknowledgment of the need and importance that education of the visually impaired be in the charge of scientifically and technically trained professionals.

### **Negative Aspects**

Negative aspects include: 1) Lack of concrete statistics on the number of blind individuals in a given area. 2) Lack of planning and definite goals in educational programming. 3) Lack of teachers trained to work with the blind and of professionals and technicians for auxiliary and complementary services. 4) School programs that are too academic of the theoretical-verbal sort, that fail to consider the blind student as an individual who not only has a mind to fill with facts, but a spirit to feed and a body to develop. They do not prepare the blind person for the environment in which he must learn to live. 5) Lack of suitable teaching material and braille literature. 6) Limited professional material in Spanish prevents those in the field of special education from keeping up to date. 7) Lack of educational services for multiply handicapped blind children.

**NEEDS IN EDUCATION** Thus, by looking at the above, what must be done becomes evident.

1. As a first step, research must be undertaken to determine the number of blind people (children, adolescents, and adults) in the different areas. Programming and services can then be planned according to the needs of the blind population.

2. If “educating is looking forward to an objective and tending to its achievement” (Mantovani, 1970), then it is necessary to point out the goals of the educational process and to develop a means of achieving these goals as demonstrated by a determinate scale of values. It is then



necessary to define educational objectives, to know *why we educate, where we go, what we want to achieve* in terms of the blind child who tomorrow will be an adult; if we have no goals to meet we shall not know which direction to take, educators will be confused, their skills wasted, and students frustrated.

3. In order to raise the educational level of schools for the blind in Latin America, there must be specialized training of teachers and other personnel. All too often we meet teachers whose only preparation for educating the blind is the knowledge of braille. As a result, children and adolescents are not able to learn skills of daily living to achieve independence. They do not learn to cope physically, socially, or intellectually and remain, as adults, attached to an institution.

At present, five or six countries do have courses for professional training at the university level; in other countries courses are held periodically for in-service teachers or for high school teachers. These courses do improve the quality of services, but a major problem with them is that all too often those attending the courses leave their jobs for private or political reasons, once more leaving the education in the hands of unprepared teachers.

4. When the teacher is not provided with suitable teaching materials, he cannot undertake his educational task efficiently. Materials should include not only the slates, the abacus, or the geometry aids, but all of the other equipment and sensory aids that are equally valuable because they give the child greater knowledge of the world around him. There are only four braille publishing houses in all this territory (in Argentina, Brazil, Colombia, and Mexico) and only three of these can exchange and distribute books throughout the continent because books in Brazil are printed in Portuguese. The remaining printing houses publish literature that is of limited interest outside their own cultures and textbooks that, again, cannot be used by other countries because of their contents. Ways must be found (through international organizations or educational centers or even other schools in economically wealthy areas) for these institutions to obtain adequate teaching materials.

It is worth noting, however, that the lack of specialized bibliographies is being solved, in part, through a translating, printing, and distribution program begun by the American Foundation for Overseas Blind in 1973. Material made available includes booklets and technical and teaching books. Still much has to be done in this field because new publications appear frequently, making it necessary that libraries be constantly updated.

As in other parts of the world, in Latin America more and more blind children are multiply handicapped. Special services in this area are lacking (at least in terms of formal programming) except in Argentina, where there is a school for deaf-blind children. In the best of cases, these children are grouped with other blind children but without receiving any special education or orientation. These children, no matter how handicapped, deserve no less attention than others and must have skilled teachers.

**HOW NEEDS CAN BE MET** It is difficult to give a concrete and effective answer to how to solve the above problems. There can be no one prescription or formula for all Latin American countries. As stated previously, in some countries the problem has been overcome, special education is progressing; in others, it began and then was arrested in the first stages; in most countries, the few bad programs that are in existence should perhaps be destroyed so that good programs can take their place.

How can this be done? Reaching, by means of the international organizations or by well known and prestigious institutions, to the government authorities responsible for education, making them aware of the importance and value of education of the visually handicapped, not only from the human point of view, but from the social and economic, too. The sheltered type of school must disappear.

I emphasize that these contacts be with governments and not with private institutions because it is very difficult in these countries for a private institution of this sort to prosper—first, because the volunteers who staff them do not want interference from those who would take away from them the objects of their charity, and second, because the socio-economic conditions of more than the 90 percent of the blind population make it impossible to run a school on the contributions made by those who attend it.

Once the authorities become aware of the needs of the blind, it will be necessary to offer them counseling, orientation, and support to make programs and services effective. It will be necessary to plan special courses for teachers in service (from one to three months in duration, according to the form and intensity of the work) and to program more extensive courses, both theoretical and practical, for teachers with no experience. Some of the graduates of these courses must go on to prepare future professionals. In addition, exchange scholarships and observational visits to educational centers abroad, and if possible, on the continent should be available.

It will also be necessary to make available educational materials to supplement the courses offered by professional workers and to offer periodic counseling and supervision over a determinate time period to assure that the results of the training programs are maintained.

**SUMMARY** Despite the fact that education of the visually handicapped began many years ago in Latin America, little is being done at present. Among the factors contributing to this are: the vast land areas that make communication difficult, lack of interest and understanding from governments and communities, economic problems influencing the budgets granted to education, and lack of confidence in the blind individual's capacity to learn.

There are marked differences among the countries concerning the educational programs in existence: in some (but very few) the problem of education and training of the visually handicapped has been practically overcome; in others, programs stay as they were about 30 years ago, and most countries have no definite plans in this area at all. There is, in general, an awareness of the necessity of "doing something" but in many countries there are no suitable professionally run organizations to bring desired programs to life. The main deficiency lies in the fact that there is not enough technical and scientific staff for carrying out programs and services with definite goals and objectives. The lack of teaching material and braille literature also has a negative influence upon services.

It will take time, effort, and great devotion to solve the problems of all Latin America because it is not a question of negotiating with one or two countries, but with 25 or more, all of which are independent and have their own values, conceptions, and priorities. However, sound aid can be provided through course programming for long- or short-term professional education and through the provision of needed teaching materials.



# The Place of CCTV in the Rehabilitation of the Low Vision Patient

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**Abstract:** *To assist practitioners in identifying patients likely to benefit from the use of electronic real-image magnification, the basic principles of closed circuit TV read/write systems are described, and the present state of the technology is reviewed together with the potential for future development. Case histories illustrate special situations where a CCTV magnifier has met a definite need.*

■ Closed circuit television (CCTV) was first suggested for use as a low-vision reading aid by Pott, Volk, and West (1959), who reasoned that such an aid would be superior to available optical systems for two reasons: 1) The electronic image and intensification of CCTV would provide better image contrast; 2) The monitor would act as an effective light source with the advantage of having the luminance relatively independent of the direction of the viewer.

At that time components were cumbersome, unreliable, and expensive. These problems were overcome with the advent of high-frequency transistors and integrated circuits used first in cameras and then in monitors from 1965 on.

Much impetus in the field was provided by the Rand Corporation of Santa Monica, California, involved since 1966 in the development of such systems, and primarily motivated by Samuel Genensky. Substantial funding was granted by the Social and Rehabilitation Service of the United States Department of Health, Education and Welfare. A report published on the results of the research (Genensky, Peterson, Moshin, Clewett, & Yoshimura, 1972) was made public and resulted in commercial manufacture of various units. By September 1973 there were seven firms in the United States engaged in the production of CCTV systems, all based on the Randsight<sup>™</sup> principle.

Because of the difference in the way manufacturers assemble components, the user has a choice of arrangement, flexibility, portability, and accessories.

**OPERATION** CCTV employs a small TV camera, mounted vertically or horizontally, to view the object being read or written directly or through a mirror. The signals generated by the camera are fed directly or through a Video Information Processor into a TV monitor placed at a convenient height and distance from the viewer. The operator selects the most appropriate degree of magnification, as high as 25x, and adjusts the image for the required degree of black/white contrast. Usually the variation and magnification is achieved by the use of 5:1 ratio zoom lens with close-up attachments. Since contrast reversal has been found useful, most systems provide for reversing black letters to white letters on a black background (reverse contrast).

A feature of many systems is the X-Y platform on which the material to be viewed is mounted. When using a CCTV system at high magnification the freedom of movement in the X direction and built-in friction in the Y axis allows the print to be scanned without losing one's place.

Disadvantages inherent in conventional optical aids include: narrow depth of focus, short viewing distance and narrow field of view, fatigue due to eye strain or holding the reading material, difficulty in providing sufficient viewing distance to allow for normal writing posture, and difficulty in achieving binocular vision where potentially possible.

**DIRECT PROJECTION DEVICES** Direct projection devices overcome some of these problems, but in turn raise new ones: difficulty in obtaining a bright, high-contrast image, high temperatures due to intense illumination, limitation of magnification to approximately 4x, and less flexibility in location of the material.

CCTV magnifiers differ from most low-vision reading aids in a number of ways (Sloan, 1974):

1. The magnified real/image formed on the monitor screen can be viewed from a normal reading distance. Therefore, patients with approximately equal vision in both eyes are able to use binocular vision without excessive demand on convergence. The camera zoom lens permits rapid



change in magnification over a selected ratio, usually 5:1, by simple rotation of a knurled ring; particularly useful in scanning titles before increasing the magnification to read text. Limits of magnification can be changed readily by the application of range extenders and close-up lenses to the optical system.

2. The system enables the user to assume correct posture for writing.

3. There is provision for electronic manipulation of the image thereby providing reverse contrast, gating of the image, and enhancement of contrast.

4. Magnifications far in excess of those practical with low vision aids can be obtained. The short depth of focus of optical magnifiers requires mechanical restraint to maintain the critical object-to-lens distance. Even with specially designed compound lens systems, aberrations become a significant factor in optical magnifiers of high power (Sloan, 1971).

The strongest of these optical devices, a 77 diopter focusable stand magnifier, produces a retinal image equivalent in size to that provided by a linear magnification of 31 times on the monitor screen, viewed from a distance of 40 cm ( $2.50 \times 31 = 77.5D$ ). However, there is no difficulty in producing even greater magnification of 50x or 60x in the CCTV, the effectivity of which is altered by the viewing distance. Effective magnification of CCTV is the integrated effect of two forms of magnification, basic (or linear) magnification and approach magnification. *Basic (or linear) magnification* is the measured increase in size of the image on the screen of the TV monitor. The greater the basic magnification, the more the readers field of vision is restricted by the monitor. For instance, increasing the magnification from 10x to 20x will reduce the effective field of vision by half. *Approach magnification* is produced by the reader moving closer to the monitor, that is by reducing the reading distance by half, the effective magnification will be doubled. This is possible with reading distances as close as 4 inches. The advantage of approach magnification is that it is simple, natural, and flexible. The reader may employ less basic magnification to maintain the largest possible field, but may move momentarily closer to the screen to identify words. Of course moving to a close distance such as this puts the young with ample accommodation, or the myope to some advantage. For the presbyope then it may be necessary to prescribe a lens suitable for the habitual working distance. If a standard working distance (WD) is taken as 30 cm then the relationship of effective magnification (EM) to the basic magnification (BM) is given as:  $EM = 30 (BM)(WD)$

5. Although the field of view appears to be greater with CCTV than with an equivalent optical system, a comparison is valid only if the working distance from the screen is stated. If a normal reading distance of 40 cm is used, the field of view on the 17 inch monitor can be shown to be slightly smaller than most optical magnifiers that provide a retinal image of approximately the same size. A linear magnification of 12x on the screen viewed from a distance of 40 cm gives the same retinal image size as a reading addition of 30D ( $12 \times 2.5$ ) which requires an eye to lens distance of 40/12 or 3.3 cm.

Table 1 indicates that all aids except Keeler Bifocal have slightly larger fields of view. If, however, the viewing distance is less than normal, 20 cm rather than 40 cm at a linear magnification of 12x, the effective retinal magnification equals that of a 60D ( $12 \times 5$ ) optical aid. With this combination of linear (electronic) and distance (optical) magnification, the field of view is significantly greater than that of a 60D optical aid.

6. A significant group of patients can read more effectively with CCTV than with conventional low-vision aids even though the required magnification is well within the range of such aids. Patients with advanced pigmentary degeneration of the retina and a useable field limited to a small central or para central area may read one word and lose the next as fixation shifts from left to right along a continuous line of text. Mehr, Frost, and Apple (1973) have observed that the need for such saccadic eye movements can sometimes be eliminated by the use of CCTV. In effect instead of the eye scanning the print, the print is passed before the eye across the surface of the monitor. Observations of CCTV users with field defects, including glaucoma tunnel field, and eccentrically fixating right hemianopsia, confirm that the patient fixes steadily on an area of the monitor screen and uses the X-Y platform to bring words into view in this area. With low vision aids it should be possible to reduce the saccadic eye movements by moving the page from right to left. For some reason this is difficult to learn possibly because of unstable fixation through poor localization in space due to abnormal head positions, and from the loss of any perceptual cues beyond the focal point of the appliance.

**DISADVANTAGES OF THE CCTV SYSTEM** Some disadvantages of the CCTV system should be considered by patients for whom conventional aids can meet many or all of their reading needs.

1. Lack of portability

2. Complexity of the system requires intensive instruction in usage and prolonged evaluation before a potential level of skill can be determined. The Veterans Administration gives each subject at least 15 hours of training and evaluation with the CCTV.

3. High cost of equipment is a deterrent to its use by agencies and to acceptance by some partially sighted patients. Price, however, is a relative thing and must be taken in context as it may be the most economical solution to rehabilitation. If the equipment provides access to printed material where no other way exists, or a means of obtaining or maintaining employment, then cost is of secondary importance (Davis, Asarkof & Tallman, 1973).

**DISTRIBUTION AND UTILIZATION OF CCTV** Scant agency involvement in the distribution of appliances in the United States has resulted in direct marketing to the client. Goldish (1973) estimates the current potential market at 30,000 units. Current sales are approximately 725 units per year. The manufacturers have determined that the potential market is expanding at the rate of 2,000 persons per year so that saturation is not likely unless sales significantly exceed their present level. Practitioners active in the low vision field have stated opposition to this method of distribution, but there is little hope of any radical reorganization in the "blindness system" within the immediately foreseeable future to provide an adequate and uniform method of distribution and standard of service for the low-vision population.

Fonda and Hills (1974), and Faye (1974) hold that only a trained person should recommend the need for a CCTV system. It is the author's conviction that no unit should be made available to any patient except under prescription, and then only on a loan basis to facilitate re-allocation should a change in visual status or death of the patient occur.

All aids and appliances should be supplied only after evaluation to determine the exact parameters required to meet specific needs of the patient. Evaluation must neces-



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**Table 1.**

Reading Aid	Diopters (D)	Standard Letters Seen
Feinbloom Microscopic	28.5	14
Hyperocular	30	17
A.O. Aspheric	31	15
Keeler Bifocal	29	12
Sloan Focusable Stand	29	15
CCTV Monitor, 17" Screen, 12x Linear magnification		13.5

**Table 3. Reading Rates Achieved by Subjects**

Reading Rate (wpm)	Subjects
0 to 2	14
3 to 10	1
11 to 20	6
21 to 30	6
(a)*	9
31 to 39	13
40 to 49	4
50 to 59	8
60 to 69	6
70 to 79	5
80 to 89	1
90 to 99	3
100 to 109	1
110 to 119	2
120 to 190	<u>2</u>
Total	81

\*Rated M, but exact reading speed not determined (between 3 and 30 wpm) because of nervousness, fatigue, or marked signs of senility.

**Table 2. Relative Legibility of Typographic Factors**

<b>MAIN EFFECTS</b>	
<i>Size*</i>	
Larger	more legible
Smaller	less legible
<i>Weight</i>	
Bold	more legible
Medium	less legible
<i>Face</i>	
Gill (sans serif)	more legible
Plantin (serif)	less legible
<i>Spacing</i>	
Close set	most legible
Extra leading	more legible
Extra word spacing	less legible
Extra letter and word spacing	least legible
* Each reader read two sizes—12 & 14pt, or 14 & 16pt, or 16 & 18pt, or 18 & 20pt, or 20 & 24pt—according to his reading acuity	
<b>INTERACTIONS</b>	
<i>Size/Weight</i>	
Smaller Bold or Larger Medium	increase
Larger Bold or Smaller Medium	decrease
<i>Face/Weight</i>	
Plantin Medium or Gill Bold	increase
Gill Medium or Plantin Bold	decrease
Other combinations of factors were analysed — Face/Size, Face/Space, Size/Space, Weight/Space — but were not found to be significant	

sarily be related to specification claims or goals set for performance, safety, construction, price, reliability, serviceability, etc., for a particular range of equipment.

Israel (1973) notes that manufacturers tend to produce a limited range of models comprising at minimum: a closed-circuit camera, a camera lens system, a monitor, and additional parts mostly mechanical in nature. These accessories play a large part in selection of one system over another as the basic components are very similar.

Friedman (1973) strongly criticizes the way the systems are being marketed, with a poor understanding of the electronic and optical constraints within which the present manufacturers must work. Admittedly, a number of criticisms are valid, including poorly designed and awkwardly placed controls, insufficient stability and flatness of the material to be viewed, the need for a higher level of manual operation, and the presence of a residual or latent image. The last factor can be likened to image persistence in the retina and represents a limiting factor in the response time to recovery of the Vidicon tube, the optical/electronic interface within the TV camera. There appears to be a practical reading limit of perhaps 200 wpm because the persistence of previous images on the screen reduces legibility. To overcome this problem, commercial cameras use an Image Orthocon or Plumbicon. These tubes cost approximately \$1000 more than the Vidicon, and unless a clear cost/benefit relationship can be established, it is doubtful that they will ever be used in CCTV. The solution will probably involve solid state interfaces, but it is unlikely that these developments will become available for our purposes in the near future.

### Flexible Design

A more flexible approach to design may be necessary. If a person is to utilize CCTV vocationally, it must be comfortable to use to minimize fatigue, be efficient and be safe. There appears to be a need for equipment designed especially to solve particular educational or vocational requirements. These special systems need not be prohibitively expensive since the system can be customized around a standard set of modules: a standard camera, a range of standard lenses, and the appropriate size monitor screen. A Video Information Processor module which controls the characteristics of an image required for a special visual problem has been developed to the point where it is a standard printed circuit board with controllable function as required. Some accessories such as the illuminator may be standardized, while other special configurations—work surface or mounting framework may be custom designed for the patient's special needs.

### Print Legibility

Many first-time CCTV readers tend to set the magnification too high (Fonda, 1975). More efficient reading is realized if the optical system is set to the minimum magnification necessary for word identification. Minimal magnification enables the reader to include whole words within the field of view rather than a few letters. Word recognition is much more efficient than reading letter by letter. Individual letters may not be as distinct as with greater magnification, but the reading process may still function at a high level if a word form contains enough cues for word recognition (Bateman, 1973). The reader is also able to use the context to provide useful cues to perception of word forms.

However, use of minimum magnification is most relevant for experienced readers. When taking history, it is important

to observe at what point in reading education the visual disability occurred, and possibly limited vocabulary, phonetic attack, and other reading skills. Those learning to read print and limited in their reading development should use greater than minimum magnification to aid in the letter and word recognition process characteristic of beginning readers.

Patients should be encouraged to come to evaluation prepared with reading material relevant to their occupational or recreational pursuits. Effort and reading rate will improve when the material is of interest.

Another factor which influences legibility is typographical design. Shaw (1969) conducted a study of visibility and rate of work; two factors relating to the design of print, capable of objective measurement. Rate of work was determined from test readings measured in terms of time taken and errors made. These criteria were used as the basis of the regression analysis calculations, which measured legibility in terms of "reading performance." All results reported were statistically significant, and on this basis a 35 percent improvement in the reading performance of the adult group was predicted for a change from the least favorable combination of type size, weight, face, and spacing. Performances of the nine readers in the sample improved 34 percent, supporting statistical predictions.

**IMAGE ENHANCEMENT** Use of video information processing can change the characteristics of an image to enhance those factors which increase legibility within certain limits:

**Magnification:** Enlargement much beyond the size necessary for the type to be seen is unlikely to increase legibility.

**Type weight:** The image cannot be made bolder in the strict sense of the printing term, but three inter-related factors of electronic enhancement can influence the *appearance* of boldness:

1. To obtain a flickerless screen image and good vertical resolution, the equipment should have a feature known as 2:1 interlace. Good interlace produces a second line which repeats the video information of the line above and interposes it between the two consecutive lines, improving image density.

2. The contrast control provided on all monitors can be used to enhance the effect of contrast by stretching the "grey scale" so that all white through to greys of a certain level can be made white; greys below this level to black are all intense black. Obvious advantages are obtained in reading newspaper where the paper is of poor quality.

3. If the target voltage of the Vidicon is slightly overrun it has the effect of driving the monitor hard, and letter strokes appear thicker. However, this function should not be overdone as it shortens the life of the tube, and in relation to other electronic factors may increase persistence.

**Spacing:** Since close-set letters were more legible as opposed to extra letter and word spacing, it may be possible to improve the characteristics of the image by "cramping" the line, a technique known as *under scanning*. External electronic controls have not yet been developed to allow convenient adjustment of this function, but it is an area that should be investigated further.

**Reverse Contrast:** Since there is little or no emission of light from normal black print, the visual information in fact comes from the background. When contrast of normal print is reversed, many patients find that the black background is much less fatiguing and the white letters more legible. Not only is there less glare factor and scatter from corneal and



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**Table 4 Reading Ability Using CCTV**

Visual Acuity	Number of Subjects (n)	S	% $\frac{S}{n}$	M	% $\frac{S + M}{n}$	U
0.4 - 0.2	5	4	84%	—	96%	—
0.2 - 0.1	20	17		2		1
0.1 - 0.06	9	6	52%	3	92%	—
0.07 - 0.05	16	7		7		1
0.05 - 0.04	8	5	47%	2	74%	1
	4	1		2		1
0.04 - 0.03	2	1		—		1
0.03 - 0.025	5	2		1		2
0.025 - 0.02	2	—	17%	1	58%	1
0.02 - 0.01	6	1		3		2
unassessable + light perception + finger counting	4	1		1		2
	81	45		22		12

\* Reading results for two children were not scored.

**Table 5**

Sex and Age	Visual Disorder	Best distance acuity in each eye		Reading rate in words per minute
		Right	Left	
male 73	diabetic retinopathy retinal circulation Bell's palsy scotomas	not assessable		60
male 18	cataracts (congenital) scotomas	LP*	0.015	37
male 82	glaucoma, cataracts scotomas	n.a.**	0.017	30
female 38	scarred retina	0.016	0.022	20

\* Light Perception  
\*\* not assessable

**A 21-year old male with a recent war injury and scotomas—visual acuity in one eye of 0.1 (unassessable in the other)—could read 35 wpm at a working distance of one inch and 12x linear magnification.**

**Table 6 Linear Magnification Required for Reading and Writing**

Linear Magnification	Number of Subjects	
	Reading	Writing
1x to 2½x	7	32
3x to 4½x	23	14
5x to 6½x	13	7
7x to 8½x	8	2
9x to 10½x	14	—
11x to 12½x	9	—
13x to 14½x	2	—
15x to 16½x	1	—
17x to 18½x	1	—
19x to 20½x	—	—
21x to 22½x	1	—
Unknown	2	26
Total	81	81

medial opacities, but it has been shown that especially in diseases of the macula involving active edema or hemorrhages, patients may reach maximal acuity only when the background illumination is increased to 100 or more mililamberts (Sloan, Habel & Feiock, 1973).

Photo multiplication of brightness may be an area for research when the appropriate solid state forms of display become available.

**GUIDELINES FOR PRESCRIBING** CCTV investigators agree that exact criteria cannot be laid down, and every case must be judged on its own merits. Schnur, Fonda, and Thomas (1975) set forth reasons for *not* prescribing CCTV: 1) Relatively good vision, acuity greater than 20/400(0.05). 2) Extremely poor vision, less than 1/200,0.005 measured in the better eye with the best correction. 3) Preference for spectacles or other low vision aid. 4) Lack of interest or motivation. 5) Low ability in manipulating the apparatus.

Tallman prescribed only 10 CCTV's in a two-year period to 1.2 percent of new patients to Boston University's Low Vision Clinic. Six were students, two were working, and one was a housewife. He believes that a patient must have a strong personal reason to read; someone who is using a low-vision aid, but is frustrated with glare, fatigue or slow reading speed, or one who needs more magnification. He also points out that patients with Achromotopsia benefit by using reverse contrast. Mehr, Frost, and Apple (1973) have established the following criteria for prescribing CCTV at the Veterans Administration Hospital in Palo Alto, California:

1. The veteran should be able to read print of 1M size or smaller with the CCTV (1M being equal to standard newspaper).

2. Attain reading speed of 30 wpm, or if this is exceeded then the veteran should read 50 percent faster than with the best near correction or other low-vision aid. He should also read with adequate comprehension as determined by the practitioner.

3. Read for at least 30 consecutive minutes with CCTV; if this is exceeded, he should be able to read 100 percent longer with the CCTV than with the best optical aid.

4. Address an envelope and write a letter; writing should be legible. *Note:* This does not apply to a patient who has forgotten how to write or who is educationally disadvantaged to the point where he has not learned to write.

5. Operate the device independently for both reading and writing involving changes in focus, magnification, and polarity.

6. A need to manage the written word regularly or perform other specific near tasks has been established, but this is viewed as a guideline rather than a rigid requirement and exception is made for special reasons.

**TRIALS** Presently there is no data based on controlled studies of patient performance with CCTV. Evaluation is reported by Genensky and his colleagues (1972), involving equipment known as Randsight 1R. Results represent a wealth of clinical and performance data, such as remaining visual acuity, pathology, and actual performance.

The trial population of 81 subjects were individuals who had heard of the research and come to Rand in the hope that they could be helped. Genensky himself commented that the circumstances of selection probably produced highly motivated subjects who, in addition, were of sufficient means to pay travel costs, some for long distances.

The main criteria was that subjects were required *not* to have had previous experience with CCTV. Relevant case histories were recorded and the subject's best acuity determined. Instruction was then given in equipment operation. After five minutes practice, the following measurements were made over a period of 30 minutes: a) linear magnification of print on screen, b) preferred reading distance, c) reading speed and writing ability.

Reading and writing ability was classified as successful (S), moderate (M), or unsuccessful (U). The successful reader achieved speeds of 31 wpm or more during the 30-minute period; the moderate reader between 2 wpm and 30 wpm; the unsuccessful reader less than 2 wpm. The successful writer produced legible, well spaced writing; the moderate writer produced badly spaced or not easily legible writing; the unsuccessful writer wrote poorly or not at all.

Generally, a person with a reading rate of as low as 20 wpm can expect to double the rate with practice. Genensky, who has a remaining visual acuity of 20/750(0.0267) in one eye only (well below the mean of the sample), can read at a rate of 125 wpm at an effective magnification of 80x.

Visual acuity ranged from 20/50 (0.4) to light perception. Forty-five subjects (over half) had acuities between 20/100 (0.2), and 20/400 (0.05). Of the remainder, five had visual acuities in excess of 20/100 (0.2), and 31 had less than 20/400 (0.05). The sample may not reflect visual acuities of the partially sighted population as a whole but it does indicate the degree of initial success and ability to read as related to visual acuity. Table 4 has been constructed from the Genensky data (Page, 1974), and indicates that while there is not a direct correlation between reading ability and visual acuity, there is an approximate relationship between the two. In general, people with a relatively high residual acuity scored better than those with little remaining acuity. In individual cases many other factors affect a person's ability, such as the presence or absence of scotoma. An examination of Genensky's data shows that 18 subjects have no scotomas and of these 15 rated S for reading, two M and one U—a considerably higher success rate than the sample as a whole. Of the 53 subjects, 28 rated S, 16 M, and 9 U. There are limits to the useful inferences that can be drawn from the numerical manipulation of the data. If nothing else, Table 5 establishes that some individuals will perform unexpectedly well. Table 6 indicates that the magnification requirements of the group varied widely.

Table 7 analyzes the six most prevalent visual disorders in Genensky's sample. Worthy of note is the poor performance of subjects with cataracts, either alone or associated with other visual disorders. Blankenagel and Jaeger (1972) showed in a study of subjects who failed with CCTV, that every patient had multiple pathology with cataract as a common factor. Compared with others of a similar age and visual acuity, having the same pathologies uncomplicated by cataracts, who succeeded with CCTV, then cataract surgery together with CCTV might restore useful vision to a substantial proportion of the aging, severely-visually-impaired population. The average age of failure with cataract complications was 65, but three cases were in the young or middle aged. The presence or absence of scotoma as a determining factor of success has already been mentioned.

### VA Study

Mehr, Frost, and Apple (1973) reported a series of tests on 40 subjects in which modern types of CCTV systems were compared with low vision aids. The data is insufficient to allow complete and definitive comparison of performance,



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**Table 7 Reading and Writing Performance of Subjects With The Six Most Prevalent Visual Disorders**

Visual Disorders	No. of Sub- jects	Reading Performance				Writing Performance			
		S	M	U	?	s	m	u	?
Mascular degeneration									
Alone	19	10	6	3	—	10	4	—	5
Plus other visual disorders	<u>10</u>	<u>8</u>	<u>1</u>	<u>1</u>	<u>—</u>	<u>6</u>	<u>—</u>	<u>—</u>	<u>4</u>
Total	29	18	7	4	—	16	4	—	9
Cataracts									
Alone	3	2	1	—	—	1	1	—	1
Plus other visual disorders	<u>15</u>	<u>5</u>	<u>4</u>	<u>6</u>	<u>—</u>	<u>5</u>	<u>3</u>	<u>—</u>	<u>7</u>
Total	18	7	5	6	—	6	4	—	8
Glaucoma									
Alone	2	1	1	—	—	1	1	—	—
Plus other visual disorders	<u>8</u>	<u>4</u>	<u>3</u>	<u>1</u>	<u>—</u>	<u>4</u>	<u>2</u>	<u>—</u>	<u>2</u>
Total	10	5	4	1	—	5	3	—	2
Optic nerve involvement									
Alone	9	4	3	—	2	3	2	1	3
Plus other visual disorders	<u>1</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>—</u>
Total	10	5	3	—	2	4	2	1	3
Retinitis pigmentosa									
Alone	6	2	2	2	—	2	2	1	1
Plus other visual disorders	<u>2</u>	<u>1</u>	<u>—</u>	<u>1</u>	<u>—</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>1</u>
Total	8	3	2	3	—	3	2	1	2
Diabetic retinopathy									
Alone	2	1	1	—	—	1	1	—	—
Plus other visual disorders	<u>5</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>—</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>4</u>
Total	7	3	2	2	—	2	1	—	4

and is biased in that subjects were chosen from veterans undergoing rehabilitation at the Western Blind Rehabilitation Center, Palo Alto, California. Also included were some who had applied for free loan of the equipment from the Veterans Administration after hearing about it from other sources. After thorough low vision evaluation, and application of criteria mentioned earlier, subjects were divided into two groups, those recommended for CCTV devices (28), and those not recommended (12). There was no significant difference in the mean visual acuity between the two groups, and they were all legally blind males, with ages ranging between 22 and 76 (medium age 44).

### Follow-up

After initial introductory sessions, trial subjects were followed up continuously during their stay at the center, and visited at home if they were not resident. Results reflect the greater degree of success after a considerable period of familiarization and training than was the case with the Genensky subjects.

The published results stressed differences between the recommended and not recommended groups. It is perhaps important to note that in allocating subjects between groups, individuals were included in the recommended groups only if their initial performance showed that cheaper and more portable optical aids were insufficient for their needs.

All subjects in both groups showed: 1) Increased writing speeds with CCTV as compared with low vision aids (up to 64 percent). 2) Greater ability to read smaller prints and to read longer with CCTV than with low vision aids. 3) Improved writing ability with CCTV, (only 25 were able to write with optical aid). 4) Use of magnifications higher with CCTV than with low vision aid when these were prescribed.

It was not possible to obtain meaningful results from an attempt to analyze performance in terms of ocular pathology. In any case, the nature of the sample made it unlikely that results could be generalized in terms of the partially sighted population as a whole.

**CCTV SYSTEMS IN AN OPERATIONAL ENVIRONMENT** How far have the results of the clinical trials discussed been substantiated in actual use of the system, and what effect do they have on the general earning capacity and lifestyle of the persons using them? Blankenagel and Jaeger (1973) have surveyed the long term results of a group of the University Eye Clinic, Heidelberg, who used a CCTV system at home or at their work for six months to two years. They used a CCTV system for reading for four to six hours daily, with little fatigue. Some who had used low vision aids previously were enthusiastic about the greater flexibility and ease with which they could read. None had difficulty in operating the equipment, although some commented adversely on the control positions of the older models. Those who had been formerly restricted to braille were enthusiastic about new possibilities for reading. Half of the patients used their CCTV for writing as well as reading although this was primarily for essential tasks such as correcting typewritten drafts.

### Alternative Configurations

The Tokyo Metropolitan Rehabilitation Center for the physically and mentally handicapped has developed an alternative configuration which they term the front integrated system. The camera is mounted underneath the monitor facing forward into 45° mirror which projects the image from the X-Y platform into a zoom lens, the focus and

magnification of which is also controlled from the front. Muranada (1974) claims the principle advantage of the arrangement is to reduce fatigue and increase efficiency. The author questions that displacing the monitor to one side is any more fatiguing provided it is positioned adjacent to the downward pointing camera and on the opposite of the camera to the handedness of the subject. The center of the screen should be located on the visual axis with eyes depressed approximately 15° below the horizontal line, and the screen inclined back 15°. The front integrative system is restrictive with regard to the type of material being viewed. The confined space beneath the unit will not allow sufficient space to use a pen or to turn pages of large books and text if the monitor is positioned at the correct height. It is also less portable because it cannot be dismantled.

### Portability and Focused Pool

Feuk (1973) reports an extremely portable system developed at the School of Electrical Engineering, Chalmers University, Gateborg, Sweden. The scanning mechanism may also be an advantage for the multiply handicapped as only one hand is required for reading operation. They claim that light sensitivity can be minimized when the monitor is displaced to one side as is possible with their design. Frost observes that high intensity light has been an annoyance to only about 2 percent of the cases at the Veterans Administration Hospital, and these were highly light-sensitive people. For this type of individual the focused pool appears to be a better solution.

The focused pool frequently has additional side benefits apart from cutting down annoying extraneous light. When equipped with an iris diaphragm as found in microscope illuminators, the light pool can be varied in size according to the magnification dependent field of the camera lens, thereby providing an excellent perceptual cue for patients who have scotomas. These subjects have difficulty watching the monitor and trying to locate the correct pen position. It is easier to locate the light pool and to place the tip of the pen directly on it. Second, when the object viewed is not very flat, the depth of the focus of the lens system can be increased by closing down the aperture and increasing the brightness of the spot to compensate. If equivalent illumination was present over the entire surface of the X-Y platform it would become an intolerable source of glare.

### Incremental Scanner

Davis, Asarkof and Tallman (1973) describe an incremental scanner where the camera is mounted horizontally and looks into a mirror tilted 45° on its horizontal axis. The reading material lies on the table immediately below the mirror. The table is free on the Y axis, and control is by means of a hand-held control box. One button scans the page incrementally in the X axis and the other moves the table in the Y axis. The rationale here is an attempt to overcome the electronic blur and persistence experienced with the continuously moving image.

### Hydraulic Power

The author has under development a range of equipment in a systems approach. It involves the use of low pressure hydraulics to provide motive power for ancillary aids and appliances, and for camera rotation in three degrees of freedom allowing the camera in the vertical plane to scan print and in the horizontal plane to view distant objects such as a blackboard. The controls of motion, lens focus and magnification, and electronic modes are through interfaces,



allowing for integration with patient-engineering systems associated with the multiply handicapped.

Table 1 is reprinted from "Evaluation of Closed-Circuit Television Magnifiers," by L. Sloan; in *The Sight-Saving Review*, Fall-Winter 1974. Table 2 is reprinted from *Print for Partial Sight*, by A. Shaw; published by Hobbs, Ltd., 1969. Tables 4 and 5 are reprinted with permission from *Technological Prosthetics for the Partially Sighted: A Feasibility Study*, by J. Page; a research report of the International Institute for Applied Systems Analysis. Tables 3, 6, and 7 are reprinted with permission from *Advances in Closed Circuit TV Systems for the Partially Sighted*, by S. M. Genensky et al., a research report of the Rand Corporation.

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## NSF Research: Not So Hot

Research in the social and behavioral sciences that is sponsored by the prestigious National Science Foundation is not always up to scratch, according to a report from the National Research Council, prepared by the Committee on the Social Sciences in the National Science Foundation. Surprisingly, basic research, usually most vulnerable to criticism, is deemed "generally excellent," but there are nonetheless weaknesses. Money as always, is a problem, and many excellent research proposals have to be rejected because of inadequate budgets. Financing is especially difficult to obtain for long-term projects, such as studies reflecting growth and change in people's attitudes and abilities.

The Committee, chaired by psychologist Herbert A. Simon of Carnegie-Mellon University, and consisting mostly of professional and behavioral scientists, was especially

critical of research in the Research Applied To National Needs Program (RANN). Such research was "highly variable" and unimpressive. Even at the level of initiating research, it was found that appropriate applied scientists did not have an adequate role in reviewing proposals and in developing programs and proposal solicitation.

The Committee believes that improvements would result from greater program stability and longer-range financing. There should also be more participation of staff trained in social and behavioral sciences in the Research Application Directorate. Another recommendation was that research "should correspond more closely to the structure of the applied fields that will perform the research." The committee was established by the National Research Council (part of the National Academy of Sciences) at the request of the National Science Foundation.



# Comment

*A special forum for individuals to respond in detail to material published in the New Outlook for the Blind or elsewhere, to present new ideas, or to raise issues which relate to the specialized field of work with blind and visually handicapped persons. Contributions should be 350-1000 words in length.*

## The Braille Code, Extending the Use of Braille, and the Improvement of Reading Skills

J. L. Douce and M. J. Tobin

*This document is intended to stimulate discussion on the desirability of scientifically examining the case for a revision of the current system of braille contractions and abbreviations. It has been prepared jointly by the Research Centre for the Education of the Visually Handicapped (Dr. M. J. Tobin) and the Warwick Research Unit for the Blind (Prof. J. L. Douce). These two research groups are considering the joint project described, combining expertise in the problems of braille perception, teaching, learning and transcription.*

Any comments, of a general or specific nature, should be sent to Prof. J. L. Douce, Warwick Research Unit for the Blind, University of Warwick, Coventry CV4 7AL or Dr. M. J. Tobin, Research Centre for the Education of the Visually Handicapped, University of Birmingham, 50 Wellington Road, Edgbaston, Birmingham B15 2EP.

It is now 20 years since the last major re-appraisal of Standard English Braille was undertaken by the National Uniform Type Committee. That re-appraisal centered round the Lochhead and Lorimer study of the frequency values of all contractions in Grade 2 braille. Despite the highly practical proposals put forward by the authors, it is true to say that no significant changes emerged. Since that time, various developments have been under way, three of which seem especially pertinent.

One of these can be described as a gathering, if rarely articulated, dissatisfaction with the difficulties, anomalies, and inconsistencies of Standard English Grade 2 Braille, particularly as they affect the learning of braille by congenitally blind children of average and below average ability and by newly-blinded adults who have been inkprint readers before the onset of blindness.

Another has been a general concern with the improvement of reading efficiency among sighted readers, many of whom have received instruction in reading

techniques that are claimed to increase reading speeds by factors of 2, 3, and 4. Inevitably this has aroused interest among teachers and readers of braille, with the consequence that attempts have been made, notably in the United States, to transfer some of these techniques to the tactile reading situation. This interest has been given added impetus by investigations showing that braille reading is, typically, something like two-thirds slower than ink-print reading.

The third, and apparently unrelated, development is the attention being given by scientists and technologists to the educational, vocational, and rehabilitation problems of the handicapped in general, and the blind in particular. Of specific relevance to this discussion is the engineer's concern with ways of increasing the accessibility to the blind of the growing mass of 'written' information (witness the design and use of reading machines such as the Optacon, Textobril, Stereotoner and the increasing quantity of transcription by computers).

### Pruning Dead Wood

It may be that the time is now opportune for looking at these three phenomena together in the hope that braille may be made available to a much larger proportion of the blind and so that those already possessing some competence in it could increase their reading efficiency. More needs to be known about the cognitive, perceptual, and motor skills associated with 'rapid' reading, and about the motivational factors involved. But progress here will be less than optimal unless there is, as Lochhead and Lorimer put it, 'some pruning of dead wood' and some simplification of the governing rules of Standard English Grade 2 Braille. It seems probable that computer technology could facilitate the attaining of some of these objectives by 'generating' an alternative braille system (with prespecified 'space-saving' characteristics) that could then be put to experimental test to ascertain relative acceptability, average reading speeds, and ease of learning.

To undertake a thorough study of this subject, and to put forward conclusions with reasonable expectation that any proposals for change will be implemented, the following program of work is envisaged:

1. A representative selection of textual material comprising sections of novels, textbooks, short documents and correspondence will be assembled. An analysis similar to that reported by Lochhead and Lorimer (1954) will be undertaken; the significant differences being that the analysis will be done from data in computer-readable form, and will consider a larger amount of material.

2. A wide range of users and experts will be consulted for suggested revision.

3. A statistical study will be undertaken on the effects of the proposed revisions, to assess their significance with regard to potential reduction in the number of rules and saving of space.

4. Revisions showing promise will be evaluated in carefully designed experiments to test their effects on learning time, reading speed, and acceptability.

5. Feedback from these experiments will be used to improve the proposals and refine the experiments, hopefully leading to

definitive results backed by scientific evidence supporting, or refuting, the case for modifying Grade 2 Braille.

It would of course be possible to push ahead separately with the improving of reading efficiency and with the examination of ways of pruning/simplifying/updating the code. There is, however, much more to be said in favor of combining these two objectives within the framework of a single unified project. The endorsing of the desirability of such a program of research and development by braille readers, teachers, and braille producers is clearly a necessary pre-requisite, and this brief, introductory statement is intended to do no more than contribute to the start of the discussion.

## Response of Blind and Seeing Children to Structural Auditory Stimuli

Bernard Lax, Ph.D. and John L. Carter, Ph.D.

It is felt by some that lack of sight may alter blind persons' interpretation of reality as compared with those who see. An escape into fantasy has been observed, and also an increased verbal output. "Verbalism" has been thought to be a compensatory mechanism for the lack of sight.

In this study an auditory projective test was used to determine the nature of increased fantasy and verbalism.

There were three objectives in this study: 1) to compare content of imagination of blind children with that of sighted children; 2) to determine whether there is an increase in verbalism among blind children as compared with sighted children; 3) to determine whether the productions of blind children are compensatory mechanisms for loss of vision.

### Procedure

Common everyday sounds were selected from the library of Radio House, University of Texas, and recorded on cassette tape. Freshman college students were asked to choose the sounds which were most recognizable. The 13 most frequently recognized sounds were selected. Basically, the sounds consisted of lullabies, phone ringing, a fire sequence, dishes falling, slow footsteps, and a story to be completed.

All subjects were between the ages 9 to 12 and were drawn from the same social class. Twenty congenitally blind children attending public school special education classes made up the experimental group; a sighted control group in the same age range was randomly drawn from the same school. Children scoring within the average range on the Verbal Scale of the Wechsler Intelligence Scale for Children were selected. Mean verbal IQ for blind and sighted children was 106.1 and 109.3, respectively.

### Results

It was assumed that those 55 who grasped the reality elements and went beyond the purely descriptive level evi-





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denced more imagination than those who did not. The seeing children used the descriptive level of interpretation significantly more frequently than the blind children. Further, an analysis of the stories is most interesting. Three situations represented a real physical threat to the blind children: fear of injury due to falling objects, falling down stairs, and being struck by a car. Although the blind children did create stories concerning these situations, the fears that they represented could not allow them to go much beyond the immediate stimuli.

Thus, there appears to be a tendency for blind children to project inner concerns and fears on to objective auditory stimuli. The blind children produced a greater range of imaginative stories.

The results of this study supports the tendency toward over-verbalism by blind persons. A word count of each story was made and a *t*-test completed. Blind children produced significantly ( $p < .01$ ) more words than seeing children on every sound situation. Also, the blind children produced fewer "no responses." It is postulated that not only do blind children verbalize more than sighted children, but that this verbalism is an attempt to maintain contact with their world and that they use imagination as a compensatory mechanism.

### Negative Events

An interesting *post hoc* result was found upon analysis of story content into "major" and "minor" negative events. Operationally, "major" negative events deals with stories that contained references to dying, serious destruction of property, and severe injury. "Minor" negative events included minor injury, being frightened, or fear of a situation. Three judges independently analyzed each story for such major and minor negative events. Stories of blind children contained significantly more references to both major negative events ( $p < .01$ ) and minor events ( $p < .05$ ). These findings lend support to the first objective of this study. Imaginative story productions of blind children are channeled into more use of "violence" as here defined.

In summary, the results of this investigation indicate that the imaginative productions of blind children do take different paths from those of sighted children. The stories of the blind children were more vivid and varied than those of the sighted children. The stories of the blind children displayed more aggression, insecurity, and fear than the stories created by sighted children in response to the same stimuli. Situations which were regarded by the sighted as commonplace and routine were regarded by the blind children as interesting, intriguing, or fearful. The blind children were certainly more verbose. Whether this was a means of coping with heightened anxiety by reducing tension is still open to question.

*Dr. Lax is an associate professor of special education at the University of South Florida and Dr. Carter is a professor of educational psychology at the University of Houston, Clear Lake City, Texas.*



# Review

**Social Statistics In Use**, by Philip Hauser. New York: Russell Sage Foundation, 1975. 400 pages. \$12.50.

**Reviewed by Barbara D. McGarry**

"There are three kinds of liars—liars, damn liars, and statisticians."

In quoting this familiar quip, the author sets the tone in his first chapter of an apologia for statisticians. Professor Hauser speaks with the authority, however, of a former Director of the U.S. Bureau of the Budget (now Office of Management and Budget), having also served with the U.S. Bureau of the Census.

Professor Hauser makes an excellent case for utilizing statistics to improve the human condition. His book deals in separate chapters on how social projections are made from survey data on births, deaths, health, marriage, divorce, education, jobs, social security, consumer trends, housing, recreation, and elections. One might reflect that in the last category, elected officials must respond to the needs documented in the other categories, to be literally responsible.

Any issue of a large metropolitan newspaper can further emphasize the current growing market for social statistics. In a recent issue of the *Washington Post*, front-page news was made from statistics gathered on hand-gun murders; a study on breast cancer has confirmed the benefits of dramatic new medical treatment; and a nationwide survey of savings and loan associations has resulted in stringent new federal regulations. On the inside pages of the same issue appeared the daily list of Congressional hearings scheduled addressing the same subjects as listed in Professor Hauser's book. Any definitive findings from such hearings must, of course, be based on the documentary evidence of statistics. As a further example, the American Foundation for the Blind has urged the National Center for Health Statistics to compile current specific studies on the incidence of legal blindness and different levels of visual handicap by age, sex, geographic location, economic condition, and accompanying handicaps. Such findings are essential to support the need for new laws and funds targeted at such specific areas. The formation of policy and action programs, and their subsequent impact, all depend on the compilation, interpretation, and dissemination of accurate and dependable statistics. Hauser, on the basis of his broad professional experience, emphasizes that proper precautions are available, and indeed essential to successful cooperation from those interviewed, to protect individual privacy in this process.

*Ms. McGarry is a specialist in governmental relations for the American Foundation for the Blind's Office of Governmental Relations, Washington, D.C.*

**The Art of Winning Foundation Grants**, by Howard Hillman and Karin Ararbanell. New York: Vanguard Press, 1975. \$6.95.

**Reviewed by Victor S. Navasky**

"The Art of Winning Foundation Grants" does not deal with such irrelevancies as the quality of your research, the seriousness of your enterprise, its contemporary urgency or whether it will genuinely improve the human condition. Rather it goes right to the heart of the matter and tells you in what format to submit your application, how to write a title page, how to get tax-exempt status (if you are an organization) and how to write a thank-you letter (including thank-you letters for rejections to "leave the door open" since "policies, personnel and happenstance may change").

It is not that the authors ignore the relevance of research, but rather that the research they are interested in is summed up in the chapter headed, "Research Your Prospects in Depth," which is devoted to how to find the right foundation for you. Although this is supposed to be a serious how-to book, the authors make gentle fun of the fellow who simultaneously submitted his proposal to 10,000 foundations. Their objection to this practice is that it is uneconomical.

Only occasionally do the authors go beyond such bread-and-margarine matters as "questions to ask" ("when does the Board of Trustees meet?"), "do's and don'ts at the meeting" ("do listen carefully," "don't press for a decision"), "writing the budget section" and where is the best library (in New York it's at The Foundation Center, 888 Seventh Ave.). Thus in the section on "Writing Tips" they helpfully advise, "The first rule: if you don't have writing talent and experience find someone who does—even if you have to pay for this service." The authors' inexperience shows here since they do not explain where the applicant is going to get the money to pay a ghost proposal-writer. (Obviously, he should apply for a planning grant.)

The most valuable tip comes after one has "narrowed the field" through "in-depth research." One then selects among the "chosen few" by considering such sensible criteria as "grant patterns," "type of foundation," "general accessibility," "distance," and my own favorite, "leadership match-up," which apparently is a fancy way of asking does any of your organization's directors know one of the foundation's trustees?

There is, I regret to report, a conspicuous omission from this otherwise complete if thin guide to the etiquette of grantmanship. Namely, a Berlitz-type section of foundationese. Although the authors themselves occasionally slip into foundationese when they talk about such matters as the need to build "evaluation" into the proposal, they don't really tell the prospective grantee how to use it. For example, they might explain how a proposal to add a swing to a playground for underprivileged children this year, and some swings and a seesaw next year, should be translated into foundationese: A proposal for a pilot project (the swing), which will be evaluated at the end of one fiscal year, by conducting

regression and path analysis (measuring the number of forward and backward arcs of the swing). Depending on the results of the evaluation the project will be replicated (more swings) and tested against a control group (the seesaw).

This slim volume, then, includes a touch of Machiavelli, a dash of Emily Post, a soupçon of a sort of Famous Proposal-Writers School approach to Foundations, and a lot of padding. Which is not to suggest that the authors have exhausted the field. There is still room, for instance, for an Anthology of Famous American Proposal Writers, including sections on "Best Budget," "Best Statement of the Problem," and "Best Application for Renewal of the Grant."

In a sense this book symbolizes the ambiguity most Americans have towards institutionalized altruism. The authors approach their task with straight (and judging from the jacket, TV-attractive) faces, yet the jacket design features a big green dollar sign hiding behind two Greek columns. This is fitting and proper in a country which regards a man who sells pork belly futures short at 10:30 A.M. and covers his short at noon on the same day with a profit of 90 cents on the dollar as a financial genius, a wizard of Wall Street. At the same time we consider a fellow who persuades the Ford Foundation to finance three years of dusty research in the attic archives of his local institution of higher learning as some sort of great American rip-off artist.

*From the New York Times Book Review Section, January 4, 1976. © 1976 by the New York Times Company. Reprinted by permission.*

## Current Literature

*A report of significant new additions to the M. C. Migel Memorial Library of the American Foundation for the Blind, prepared by Elaine M. Siegel, librarian. These materials may be borrowed from the library.*

### Blindness

**It's About Time Visual Impairment Came Out In the Open!** by Ellen Fitzsimmons. Center for Studies in Vocational and Technical Education (University of Wisconsin—Madison, 321 Old Education Building, Madison, Wisconsin 53706), 1975, 18p. Written for vocational educators, this illustrated booklet provides a general introduction to the subject of blindness. Brief treatment is given such areas as social interaction with blind persons, definitions, causes, special aids, vocational considerations, and sources of large print, braille, or recorded materials.



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## Demography

**The Social Demography of Vision Impairment in the United States**, by Hyman Goldstein and Eric Josephson. *Public Health Reviews* (International Health Publications, 27 Reading Street, Tel Aviv, Israel 69024), Vol. 4, No. 1, 1975, pp. 5-38. A preliminary discussion of the sources and limitations of data on the blind is followed by a presentation of the number and characteristics of blind and other visually impaired in the United States. Aspects covered include degree of visual loss; incidence by age, sex, and race; health status; socio-economic level; living arrangements; employment; and geographical distribution.

## Education

**British and American Arithmetic Devices for the Blind—An Analytical Description**, by Joseph Jackson Kerr, Jr. Doctoral Dissertation, Temple University, 1974, 278p. plus Appendices. Study undertaken to provide an evaluative description of British and American arithmetic devices used from 1700 to the present. The report is divided into five sections: British and American non-braille devices, 1700-1900, with biographical sketches of their inventors; Louis Braille's system for arithmetic; the battle of the types; the Hoff Writing Aid and Perkins Braille; and arithmetic devices in use today. Evaluative criteria pertaining to cost and physical and operational characteristics are applied to each device, facilitating comparison. Copies available from: Xerox University Microfilm, 300 North Zeeb Road, Ann Arbor, Michigan 48106, \$11.00.

**Community Residence Training Program Curriculum**. Perkins School for the Blind (175 North Beacon Street, Watertown, Massachusetts 02172), 1975, 116p. \$2.00. Curriculum guide for residential program designed to provide essential training in skills to aid non-academic students in independent and semi-independent living. Units, organized in a behavioral objectives format, include daily living skills, food management, vocational education, and leisure time and recreation. Other benefits of the program have been the improvement of language development by the deaf-blind students, and an improvement in social skills.

## Low Vision

**Correction of Subnormal Vision**. 2d ed., by Norman Bier. Butterworth & Company (Publishers) Ltd. (88 Kingsway, London WC2B 6AB England), 1970, 287p. \$19.25. This textbook updates the original edition, published in 1960. Chapters include partial sight and blindness, partially-sighted children, telescopic lenses, microscopic lenses, multifocal systems, contact lenses and non-optical aids, magnifiers, visual efficiency, clinical procedure, and case reports. Numerous photographs, illustrations, and an extensive bibliography enrich the work.

**Maximum Use of Residual Vision: Optical Aids Orientation Program**, by Randall T. Jose and Gale Watson. *Optometric Weekly* (Professional Press, Inc., 101 East Ontario

Street, Chicago, Illinois 60611), Vol. 66, No. 46, December 25, 1975, pp. 23-26 & Vol. 67, No. 4, January 22, 1976, pp. 80-84. Report on an optical aids training and orientation program conducted by the low vision clinic of the School of Optometry/Medical Center, University of Alabama, Birmingham. At the Special Technical Facility, Talladega, Alabama, partially sighted clients in the vocational training program receive vision screening, evaluation, low vision aids and training, as well as follow-up care on a weekly basis. Case histories illustrate how the practitioners deal with patients' physical, psychological, and cosmetic problems.

## Orientation & Mobility

**Games with a Purpose: A Collection of Orientation and Mobility Games**, edited by Richard C. Drouillard. Michigan State Department of Education (Special Education Services Area, P.O. Box 420, Lansing, Michigan 48902), [1975], 45p. This collection is an outgrowth of the 1974 Vision Institute for teachers of the visually impaired, held near Battle Creek, Michigan, August 5-16, 1974. It is intended to provide instruction in travel techniques to professionals working with the blind, and to develop skills and awareness in young clients. Each game is outlined in terms of appropriate age group, purpose or goals, equipment or materials, and procedures.

**Something New On Campus: Engineering Aspects of Blindness**, by William B. Campbell and Otis H. Stephens. *The Braille Forum* (American Council of the Blind, 106 N.E. 2nd Street, Oklahoma City, Oklahoma 73104), Vol. 14, No. 3, November/December 1975, pp. 10-12. Report by two University of Tennessee faculty members, one sighted and one blind, on a multidisciplinary course designed to sensitize sighted students to the environmental obstacles encountered by blind persons on a large urban campus. Sighted students underwent a blindfolded mobility experience, and developed tactile maps of the campus and adjacent business district.

## Reading Devices

**An Analysis of Optacon Usage**, by Loren T. Schoof, II. Telesensory Systems, Inc. (Palo Alto, California 94394), 1975, 30p. The author, a blind Optacon user, is a sensory aids specialist with Telesensory Systems, Inc. He explores three topics relating to Optacon usage: a categorization of Optacon users according to occupation, a statistical analysis of factors affecting performance levels achieved after training, and a description of how individuals in different occupational groups are utilizing the Optacon on the job. Copies are available from: ERIC Document Reproduction Service, P.O. Box 190, Arlington, Virginia 22210 (Document #ED 108 449, \$1.95).

**Evaluation of an Ink Print Reading Aid for the Blind: The Stereotoner**, by Robert A. Weisgerber, Bruce E. Everett and Claudette A. Smith. American Institutes for Research (Post Office Box 1113, Palo Alto, California 94302), 1975, 162p. Sponsored by the Veterans Administration, the study was de-

signed to develop and make available specialized instructional materials for the Stereotoner, to coordinate instructional programs, and to evaluate candidates for training, the training process, and the outcomes of training in terms of reading performance achieved (reading rate, accuracy, and variety). A new instrument, the Auditory Selection Test, was developed to assess aptitude for Stereotoner training.

**Teaching the Stereotoner: Its Problems and Rewards**, by Margaret Butow. *Bulletin of Prosthetics Research* (Research Center for Prosthetics, Veterans Administration, 252 Seventh Avenue, New York, New York 10001), BPR 10-22, Fall 1974, pp. 433-435. The author, a reading machine specialist at The Hadley School for the Blind, Illinois, reports on an evaluation project on learning to read ink print with the Stereotoner audible output reading aid. The project, which included 12 blind nonveterans, was conducted from October 1973 through June 1974, and was sponsored by the Veterans Administration in cooperation with the Committee on Prosthetics Research and Development of the National Academy of Sciences, and the American Institutes for Research.

## Research on Blindness

**International Register of Research on Blindness and Visual Impairment**, compiled by J. M. Gill in collaboration with L. L. Clark. Warwick Research Unit for the Blind (University of Warwick, Coventry, Warwickshire CV4 7AL England), 1975, 129 p. £ 5. Compiled from responses to questionnaires, this register covers research in the natural, behavioral, and technological sciences bearing on problems arising from visual impairment. It excludes the purely medical, but includes causes of blindness, low vision, and sight restoration. The Register Utilizes a scan/column index with the dictionary of descriptors (with several additions) developed by the International Research Information Service.

# Publications of Note

*A classified listing of books, articles, directories, pamphlets, and other material of interest to the readers of the New Outlook for the Blind, prepared by the editors. Please write to the source listed in each entry if copies or more information is desired; the materials are not available from the New Outlook or the American Foundation for the Blind.*

## Audition

**The Auditory Neural Network in Man**, by R. Galambos. California University, (Department of Neurosciences, La Jolla) 1975. 24p. NASA-CR-143135; N75-27742/6WJ. Paper copy, \$3.25; Microfiche, \$2.25. The principles of anatomy and physiology necessary for understanding brain wave recordings made from the scalp of normal



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persons are briefly discussed. Brain waves evoked by sounds are described and certain of their features are related to the physical aspects of the stimulus and to the psychological state of the listener. The position is taken that data obtained through scalp probes can reveal a large amount of detail about brain functioning and that analysis of such records enable detection of the response of the nervous system to an acoustic message at the moment of its inception and to the progress of the message through the brain. Brain events responsible for distinguishing between similar signals and making decisions about them appear to generate characteristic and identifiable electrical waves. Some theoretical speculation about these data are introduced with the aim of generating a more heuristic model of the functioning brain.

**Electrophysiological Measurement of Human Auditory Function**, by R. Galambos. California University, (Department of Neurosciences, La Jolla) 1975. 26p. NASA-CR-143136; N75-27743/4WJ. Paper copy, \$3.75; Microfiche, \$2.25. Knowledge of the human auditory evoked response is reviewed, including methods of determining this response, the way particular changes in the stimulus are coupled to specific changes in the response, and how the state of mind of the listener will influence the response. Important practical applications of this basic knowledge are discussed.

## Braille, Large Type and Recorded Materials

**The Negro Braille Magazine**. (Margaret Whisenton, editor, 510 Massey Avenue, Durham, North Carolina 27701), free of charge, issued quarterly. Contains selected articles from current black publications.

## Consumerism

**Rehabilitation Consumerism, Confrontation or Communication and Cooperation?** Andrew S. Adams. *Journal of Rehabilitation* (National Rehabilitation Association, 1522 K Street, N.W., Washington, D.C. 20005), Vol. 42, No. 1, pp. 23-25, 29. Based on a speech given at the annual meeting of the National Rehabilitation Association, October 14, 1975, this paper calls for increased cooperation between consumers and rehabilitation workers to improve the quality of rehabilitation services for disabled persons.

## Diabetes

**Effect of Photocoagulation on Diabetic Retinopathy in Rehabilitation of the Blind**, by Alice McPherson. (Retina Research Foundation, Houston, Texas), 1973. 73p. SRS-14-55237-001; PB-243 135/1WJ. Paper copy, \$4.25; Microfiche, \$2.25. The report describes photocoagulation treatment results in 792 eyes of diabetic patients with either background retinopathy (B) or proliferative diabetic retinopathy (PDR), using visual acuity (VA) and O'Hare classification to judge success or failure. Variables studies were: (1) age of onset of diabetes

in the patient, (2) time of treatment (B or PDR stage), (3) photocoagulation method and (4) method of judging results (VA and O'Hare or VA alone). Results for treated eyes were compared with published data on a sample of untreated eyes. Vocational consequences of treatment were investigated by means of questionnaires sent to treated patients.

**Register of Newly Diagnosed Diabetic Children**, by Arnold Bloom, T. M. Hayes, and D. R. Gamble. *British Medical Journal*, September 6, 1975, pp. 580-583. Based on a 1972 register of new cases of diabetes occurring in children 0-15 years in Great Britain and Ireland, this article analyzes the yearly incidence of diabetes by geographical area, age, sex, and relatives who have diabetes. The register and the investigations based on it will be continuously updated.

## Education

**Education's New Pipeline**, by Story Moorefield. *American Education* (U.S. Office of Education, 400 Maryland Avenue, Washington, D.C. 20202), March 1976, Vol. 12, No. 2, pp. 6-8. The National Diffusion Network (NDN) was set up by the Office of Education in 1974 to disseminate information about new programs and innovations in education. This article reviews the process of selecting programs to be included in the "pipeline," and the methods for initiating similar programs into other school systems.

## Perception and Recognition

**Face Perception: A Review of Experiments With Infants, Normal Adults, and Brain-Injured Persons**, by R. K. Yin. (Rand Corporation, Santa Monica, California), 1975. 32 pp. (P-5348) AD-A010 962/9WJ. Paper copy, \$3.75; Microfiche, \$2.25. Two observations about human behavior suggest that the human face may be a special visual object. First, the average person can discriminate and remember hundreds of faces in spite of the fact that faces are highly similar objects. Second, the average person uses the face as a source of a great amount of information about other individuals. Identification is but one aspect of this information; faces also serve as the basis for inferences about character and personality, mood, and the specific feelings being expressed by another person.

## Periodicals

**Health and Social Work**. National Association of Social Workers (Box 504, Murray Hill Station, New York, N.Y. 10016), issued quarterly. NASW members: \$15.00 per year; non-members and institutions: \$30.00 per year. Designed specifically for social workers and other helping professionals in the health and mental health fields.

**Newsounds**. Alexander Graham Bell Association for the Deaf (3417 Volta Place, N.W., Washington, D.C. 20007), issued monthly except combined issues in March-April and July-August. A newsletter containing current events and literature ef-

fecting deaf and hearing impaired persons. Publication began with the January 1976 issue.

## Professional Education

**Expansion of the Scope of Optometry**, by Vincent P. Lupica. *Review of Optometry* (Chilton Way, Radnor, Pennsylvania 19089), Vol. 113, No. 2, pp. 53-54. The author advocates expansion of the duties of optometrists, (particularly in administering drugs) and more recognition of the field of optometry from the medical profession.

## Rehabilitation

**A Curriculum Guide for Occupational Therapy Educators**, by Gail S. Fidler. American Occupational Therapy Association, Inc., Rockville, Maryland, 1974. 9p. HRA/OC-76023; PB-243 801/8WJ. Paper copy, \$3.25; Microfiche, \$2.25. The report recounts the approach, summary of work, and the accomplishments of the project for development of a curriculum guide for occupational therapy educators. The report is a companion to a three-volume report on the delineation of the roles and functions of occupational therapy personnel and the curriculum guide itself.

**Services to the Blind: A Community Concern**. A Report from Prime Study Group III of the Institute on Rehabilitation Services, by Morgan Vail and Joseph L. Townsend. (California State Department of Rehabilitation, Sacramento), 1973. 96p. SRS-73-25077-001, DHEW/SRS-73-25077, PR-243 268/0WJ. Paper copy, \$4.75; Microfiche, \$2.25. The project investigated concerns, issues and practices related to services to the blind: (1) employment and placement, (2) relationships between public and private agencies, (3) manpower needs, (4) population identification, (5) the underserved population and (6) administrative concerns. The appendices contain a bibliography classified according to the aged blind, the deaf blind, the mentally retarded blind, and the multiply-impaired blind.

## Volunteers

**Companion-Sitting With Handicapped Children**, by Gregory Heuston, Susan Bacalman, and Joni Mills. *Children Today* (Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402), January 1976, Vol. 5, No. 1, pp. 6-9, 36. Most parents have experienced the frustration of not being able to find a babysitter. For the parents of a handicapped child it can be even more difficult to find a reliable person willing to take care of the child for awhile. This article describes a training workshop for teenagers held in Silver Springs, Maryland to teach young people to be companion-sitters for handicapped children.

**Volunteer Management Handbooks**. Goodwill Industries of America (9200 Wisconsin Avenue, Washington, D.C. 20014), [1975]. \$10.00. 12 Vols. Designed as a tool for developing and strengthening volunteer programs, these handbooks cover all phases of volunteerism including recruitment techniques, organization, training, orientations, motivation, and evaluation.



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## News in Brief

■ The 53-year-old National Public Relations Council of Health and Welfare Services, has changed its name to the National Communications Council of Human Services. "The name change reflects new directions, purposes, and objectives adopted in recent years by our member agencies," said council president Carlton E. Spitzer. "We would like to draw attention to the complexity of human needs beyond simple public relations. Our members, and communicators generally, need to become more sophisticated in order to meet the demands of today and tomorrow."

■ Bank of America now has large print, embossed checks for its blind and visually impaired customers. The service includes large print deposit slips and a check register in black on yellow paper. The checks are available free of charge.

■ The recently founded American Association for the Education of the Severely and Profoundly Handicapped (AAESPH) is inviting membership and participation of individuals who have an interest in the education of handicapped persons. The principal functions of AAESPH are advocacy and the development and implementation of comprehensive educational services for handicapped individuals, teacher training programs, and instructional programs and materials. For further information write, AAESPH, P. O. Box 15287, Seattle, Washington 98115.

■ The 17th edition of *Summary of Information on Projects and Activities in the Field*

of *Rehabilitation of the Disabled* (1974) is available from the United Nations' Rehabilitation Unit for the Disabled. The booklet covers projects conducted throughout the world and includes summaries of congresses, meetings, training courses, publications, and films.

■ The National Easter Seal Society for Crippled Children and Adults recently began publication of its advocacy newsletter, *NESSAN*. The newsletter reports on programs, publications, and meetings advocating the rights of handicapped persons. For subscription information contact the National Easter Seal Society, Advocacy Project, 2023 West Ogden Avenue, Chicago, Illinois 60612.

■ A new optoelectronic method for measuring motion and vibration in two dimensions has been developed by Lars Erik Lindholm of Sweden's CTH Institute for Applied Electronics. The method, called Selspot for "Selective Spot Recognition," involves determining various spatial positions of infrared light-emitting diodes (LEDs) that are attached to the moving object. The LEDs' rays are focused on the surface of a camera-mounted photodetector having output signals that are a function of the "diodes' instantaneous positions. These signals then yield real-time results in either analog or digital form. Selspot was originally designed for studying human and animal limbs, but it can also be used to measure the vibrations of machine parts, aircraft wings, buildings, and bridges.

■ The Veterans Administration and the Rehabilitation Services Administration of the Department of Health, Education, and Welfare have agreed on new principles for expanding services to disabled persons and their dependents. The agreement calls

for increased coordination in medical rehabilitation research, vocational rehabilitation, use of special facilities, and job placement.

■ The National Braille Association (NBA) has announced that there will be a field test for its new Reader-Transcriber Registry Service. The Registry will braille any print item that an individual would find helpful for work, recreation, or daily living. The Registry will not accept textbooks, however, since they are already transcribed by many groups. For the duration of the field test the charge is 1½¢ per brailled page, including any necessary binding. Inquiries should be sent to Mrs. Lawrence M. Levine, NBA Reader-Transcriber Registry, 5300 Hamilton Avenue, No. 1404, Cincinnati, Ohio 45224.

■ Three-dimensional models of the historic square mile around Independence Hall have been constructed for the use of visually handicapped visitors to Philadelphia during the Bicentennial year. The models, bas reliefs cast in polyester bronze, depict the 40 historic buildings in the square, including such features as steps, walls, lawns, and gardens. Included in the models are braille descriptions of the buildings and surrounding area.

■ Boston has also prepared itself for the Bicentennial. The majority of the exhibits will be barrier free, including the "Freedom Trail" which now has curb cuts. In addition, 25 buses are being equipped with hydraulic lifts and will soon be introduced into the public transportation system. A guide to the city's historical, recreational, and commercial facilities is also available for handicapped persons in print, braille, and cassette forms. For a copy of the guide write, Boston 200, One Beacon Street, Boston, Mass. 02108.



■ The Presidents' Committee on Employment of the Handicapped has announced two staff changes to strengthen the Committee's present programs of affirmative action for disabled persons. H. Paul Messmer has been assigned as coordinator of all national Committee activities involving action for handicapped people. Edward F. Rose will be heading the Committee's State Relations Division, working with volunteer Governors' and Mayors' Committees on the Employment of the Handicapped.

The emphasis on affirmative action is the result of a meeting between former Secretary of Labor John Dunlop and Presidents' Committee Chairman Harold Russell, where an agreement was reached that the Committee assume the task of building national support for affirmative action in business, labor, rehabilitation, and the handicapped population.

■ Toll-free telephone service to the Veterans Administration is now available to most veterans and their families. The toll-free telephone network was designed to benefit veterans who do not live near a VA office. The toll-free numbers are listed in local telephone directories under "U.S. Government Agencies."

■ At a meeting of the World Council for the Welfare of the Blind's Technical Aids Committee, held in Copenhagen, October 1975, special emphasis was placed on the problems in developing countries and the allocation of technical aids. The Committee resolved to do a study within Europe on the allocation of aids, the results of which will be presented at the next international technical conference to be held in London, May 1977. The main topics of that conference will be the problems of communication for the blind, technical and social prerequisites for mobility, and forms of promoting an independent production of aids for blind persons in developing countries.

■ Dazor magnifier lamps, formerly only available to medical practitioners, are now being distributed to individuals with low vision by Kraft Accessories. Information about the magnifier lamps is available from Ann Brower, Kraft Accessories, P. O. Box 1261, Midland, Michigan 48640.

## CORRECTION

The photographs used on the cover and page 50 of the February 1976 *New Outlook for the Blind* were taken by Elaine Cook Graybill of Nashville, Tennessee. Credit for the photographs was inadvertently omitted from that issue.

## APPOINTMENTS

■ Vision Center of Central Ohio: **Gerard J. DeAngelis**, executive director.

■ Florida Association of Workers for the Blind, Miami Lighthouse: **Vernon Metcalf**, executive director.

■ Library of Congress: **Daniel J. Boorstin**, Librarian of Congress.

■ Jewish Institute for the Blind: **Chalm Re-shelbach**, director general.

■ Hecht Institute for State Child Welfare Planning, Child Welfare League of America: **Steven Ebbin**, director.

## AWARDS

■ Peter J. Salmon Award: **Luther Morris**, Virginia Industries for the Blind, Charlottesville.

## COMING EVENTS

### May

14-16 American Ophthalmological Society, Kamuela, Hawaii.

16-20 American Federation of Labor and Congress of Industrial Organizations, 18th National Conference on Community Services, Washington, D.C.

26-29 American Speech and Hearing Association, Western Regional Conference, Portland.

### June

13-16 National Conference on Social Welfare, 103rd Annual Forum, Washington, D.C.

13-28 XIII World Rehabilitation Council, Tel Aviv, Israel.

22-26 American Optometric Association, 79th Congress, Las Vegas.

23-26 Alexander Graham Bell Association for the Deaf, Biennial Convention, Boston.

26-July 1 American Medical Association, Annual Convention, Dallas.

27-July 2 American Physical Therapy Association, New Orleans, La.

28-July 2 American Home Economics Association, Annual Meeting, Minneapolis, Minn.

### July

5-9 National Federation of the Blind, Los Angeles.

5-9 Association for Education of the Visually Handicapped, Louisville Ky.

5-9 National Association of the Deaf, 33rd Biennial Convention, Houston, Tx.

5-10 American Council of the Blind, Hot Springs, Ark.

### August

29-September 3 International Committee for Education of the Deaf-Blind, Sixth International Deaf-Blind Seminar, Sydney, Australia.

### October

6-10 American Academy of Ophthalmology and Otolaryngology, Las Vegas.

11-15 American Occupational Therapy Association, Annual Meeting, San Francisco.

15 White Cane Day.

17-21 American Public Health Association, Annual Meeting, Miami Beach, Fla.

17-22 National Recreation and Park Association, Boston, Mass.

27-30 National Rehabilitation Association, Annual Conference, Hollywood, Fla.

27-30 Western Regional Conference of the American Association of Workers for the Blind, Tucson, Arizona.

28-31 International Congress of Sexology, Montreal.

### November

19-23 American Speech and Hearing Association, Annual Convention, Houston.

### December

4-8 American Medical Association, Clinical Convention, Philadelphia.

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## AIDS AND APPLIANCES

Map kits and Handbook—For details contact: Dr. G. A. James, Blind Mobility Research Unit, Department of Psychology, University of Nottingham, Nottingham NG7 2RD, United Kingdom.

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## PERSONNEL

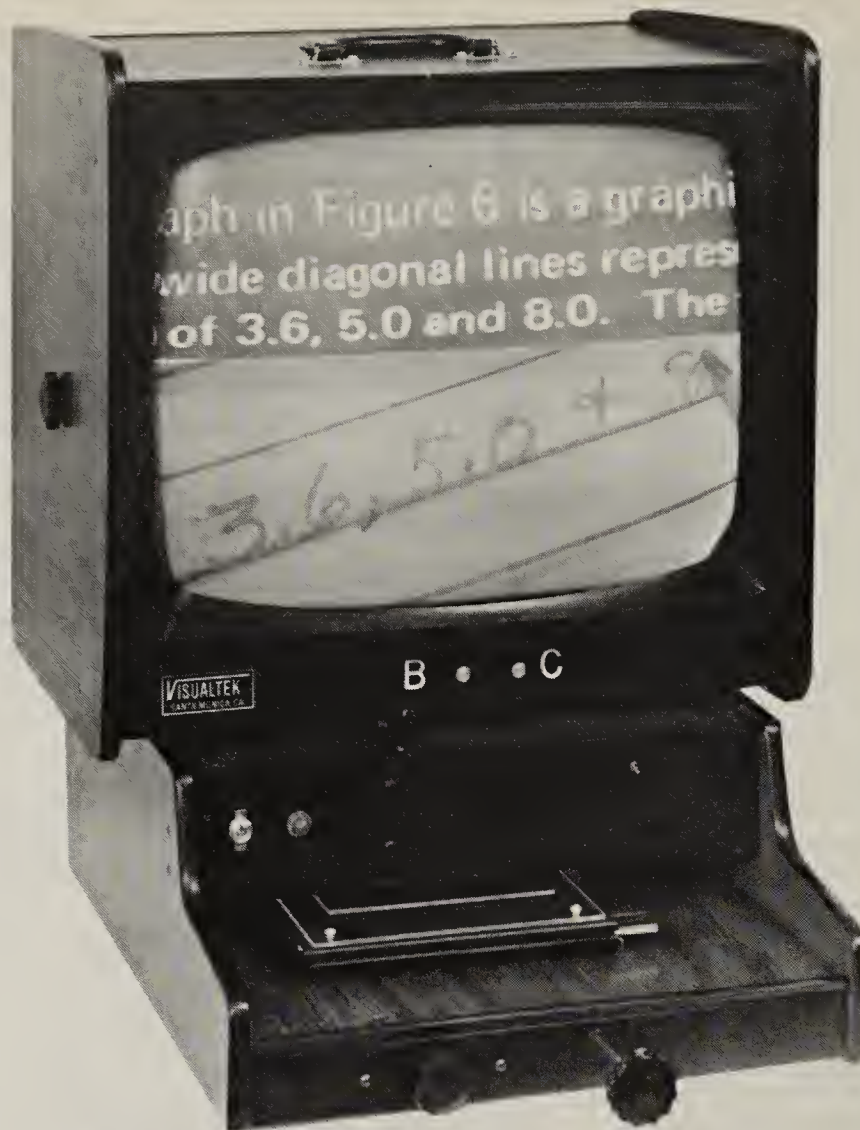
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New project developing personalized science materials for the visually handicapped seeks person with degree in special education and experience in curriculum development and/or educational evaluation. Person will be responsible for design and evaluation of science activities. Position is for one year with possible extension for two more years. Send personal vita with description of background and experience by June 1, 1976 to: Dr. Herbert D. Thier, Director, Science Activities for the Visually Impaired, Lawrence Hall of Science, University of California, Berkeley, Ca. 94720, (415) 642-3679.

Itinerant teacher of visually handicapped children to cover a region of southern or central New Hampshire. Work with statewide educational team to provide for students preschool through grade twelve. Dual certification including orientation mobility is desired, although not required. Contact: Jonathan McIntire, 2 Cheyenne Street, Dover, New Hampshire 03820, (603) 271-3741.





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“How a person sees himself is recognized as one of the primary determinants of how that person is likely to behave. By use of the label ‘blind’ for persons who have usable vision, we are actually saying to them ‘You must see yourself as a blind person.’ They therefore begin to view themselves as different people, and indeed we often say they are different people with the expectation that they will behave as different people. It is a well-known fact that people with residual vision often arouse irritation and annoyance in others, and even in those of us who consider ourselves professional, because in the period of adjustment and reorganization they appear awkward, they may bump into things, and they may assume very unusual postures and functional behaviors in an attempt to continue to use the vision which they have. However, we also know that, if a person sees himself as capable of retaining some visual ability and using vision for personal care and continued independence, he will maintain an interest in using sight. Motivation to continue to be independent and to continue to function is one of the primary factors related to effective and efficient use of residual vision. Losing vision need not mean total and complete loss of efficiency in all aspects of life, although if education and rehabilitation continue to use the word ‘blind’ for those who retain or have usable vision we may force them to fit that model—that label—and to begin to see themselves not as having visual ability to function but as lacking ability to function as a visual person.”



# THE NEW FOR THE BLIND

# Outlook

JUNE 1976  
Volume 70  
Number 6



**Legal Implications of Solo Experiences  
in Orientation and Mobility Training**



# THE NEW FOR THE BLIND Outlook

June 1976      Volume 69      Number 6

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# Legal Implication of Solo Experiences In Orientation and Mobility Training

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■ To provide added realism to an orientation and mobility training program, many instructors require their students to engage in independent "solo" travel experiences, that is, travel activities in which the student travels without the supervision of an orientation and mobility instructor. Some instructors rule out these experiences for a variety of reasons, the main reason being the risk of student injury, which might also lead to charges of negligence because of inadequate supervision.

Throughout the orientation and mobility profession there is uncertainty, many questions remain unanswered, and there are misconceptions regarding independent experiences and legal liability. An attempt was therefore made to obtain information which might provide the orientation and mobility profession with guidelines, information, and recommendations to make members more aware of the possible legal implications. Information was requested, by means of a questionnaire, from lawyers, orientation and mobility instructors, and administrators throughout the United States. Data were also taken from various sources pertaining to supervision and legal liability.

The information presented here is not to be mistaken for legal advice. Each individual should obtain counsel from local members of the legal profession to satisfy specific needs. No specific, clearly defined guidelines can or could be provided which would apply to all instructors because laws and judicial interpretations vary from state to state, even from locale to locale. The intent is to make the profession aware of the possible consequences of an injury and subsequent legal action. Furthermore, it is not the intent here either to sanction or discourage the application of independent experiences. Such decisions must be made by individual instructors and their administrators. It is hoped that these individuals will be assisted in their decisions by the information presented here.

**RATIONALE FOR SOLO EXPERIENCES** Proponents of solo experiences believe that, because of the ever-present close supervision by the orientation and mobility instructor, many visually handicapped individuals grow somewhat dependent since they know that their instructor is readily available to provide for their constant safety. Because of this, true independence, which will be expected or required upon completion of training, is probably never experienced. Without controlled solo experiences, many believe that the student has little opportunity to establish confidence in his personal abilities and in the skills, methods, and techniques received in training.

To expect independent travel upon completion of training without some provision for unescorted travel during training is unfair, some instructors feel. This sudden expectation could create stress and frustration in the student thereby interfering with motivation for independence and good orientation and mobility performance. They contend that merely to provide the student with the skills for independent travel does not insure confidence and motivation.

Those orientation and mobility instructors who responded to the questionnaire additionally felt that solo experiences gave the student the opportunity to 1) maintain and reinforce skills; 2) actualize potential; 3) demonstrate capability, and in a sense, "flex his muscles"; 4) gradually transfer reliance on teacher to himself; 5) become more involved in the community; 6) become totally accountable for decisions; 7) experience success and accomplishments,

**Abstract:** *Orientation and mobility instructors, administrators, and members of the legal profession were surveyed to obtain information on the use of "solo" travel experience during training and to examine the instructor's liability in case of student injury. A list of precautions was developed to protect the student and also to reduce the possibility of the instructor's being sued for negligence. Since no actual legal suit was found in the survey or in the literature, legal opinion is given on a hypothetical case. Guidance was also obtained from court decisions where instructors of sighted children had been sued for negligence.*



# Legal Implications

thereby boosting self-concept and confidence; 8) self-evaluate abilities and limitations; 9) reinforce the rationale for orientation and mobility training; 10) realize that the instructor has faith in him and in his abilities; 11) become challenged; 12) sharpen awareness of realistic travel and social requirements; 13) transfer and internalize learned skills; and 14) become motivated to advance to higher levels of independence. (One instructor described this last point as "independence breeding more independence.")

Some instructors felt that through these experiences they were given a chance to evaluate and learn more about their students. This practical testing device, as it was called, could give an indication of a student's maturity, confidence, and reaction to real life situations following training.

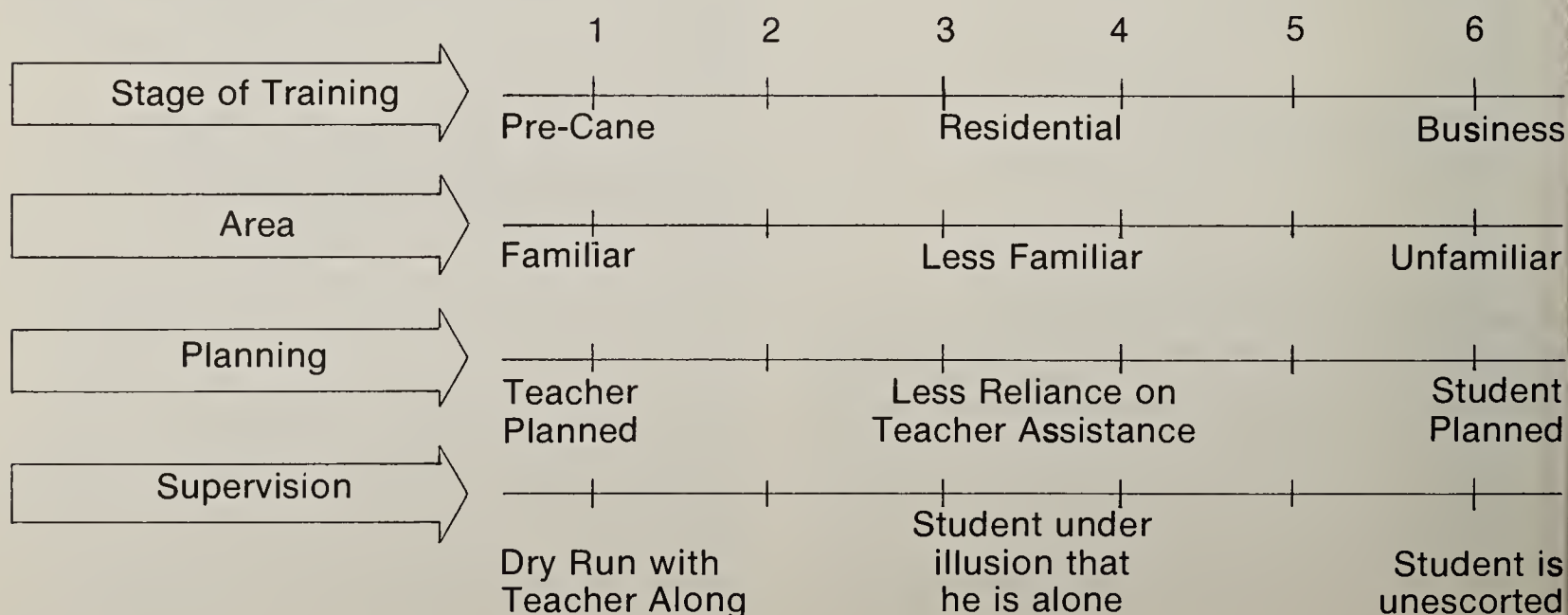
**RATIONALE AGAINST SOLO EXPERIENCES** Those instructors who do not provide solo experiences for their students contend that it is not a significantly beneficial methodology because no analysis of what actually happens can be made when they do not observe the student. They contend that the student is not provided with instructor feedback, which is necessary for improvement of travel skills. Furthermore, they reason, the student may not perceive the significance of all that happened during the experience. Moreover, these experiences may have negative effects resulting from fear and frustration when the student is unable to deal with various situations.

Listed as the main reason for not applying solo experiences was the risk of student injury and legal liability. Administrative restrictions were another often cited reason for instructors being unable to use these experiences. In most cases the reason for the administrative restrictions was legal responsibility and fear of lawsuits.

## Definition of Solo

The definition of solo experiences as given in the questionnaire may account for some instructors' stating that they did not apply this methodology. As defined in this project, solos are of an assigned, required nature. While some instructors do not require solos they stated that legally they are not as involved in a situation of possible student injury

Figure 1. Variables in the Solo Experience



if they only encourage solos. By requiring them, instructors feel more directly responsible.

Compared with the project's definition, mobility pass systems, common to many state residential schools for the blind and at some rehabilitation agencies for blind adults, are not, for the most part, included. Mainly these pass systems allow off-campus travel, but they usually do not require these experiences. Also, as defined in this project, solo experiences can, and usually do, occur during regularly scheduled lesson time. They may also take place after school or on weekends. Pass systems, by contrast, usually allow students to travel during off-hours only and not during regularly scheduled lesson time.

Another thing must be clarified about the definition of solos in this project. In the definition it states that the student travels unescorted. However, if the instructor escorted the student, but without the student's knowledge, this "addition" to the definition is allowable. Giving the student the impression that he will be unescorted, when actually he is supervised, allows observation and protection, thereby minimizing the chance of student injury. This in no way interferes with the accomplishment of the desired objectives.

Some instructors disagreed with having the student function under an illusion. They felt that this violated their ethical standards and professional relationship with students in that they were not truthful. This could, they explained, affect the relationship they would have with this student in the future, should the student find out.

Violation of ethical standards was mentioned in one other response. One instructor could not justify assigning an independent experience during regularly scheduled mobility time. No activity, it was stated, could take precedence over supervision of his student. He stated that mobility lesson time was time for instruction and experiences in which he was there to observe and participate.

**SURVEY OF INSTRUCTORS** Of the 75 questionnaires returned, 18 percent of the instructors said they did not apply independent solo experiences. Of these, 6 percent stated they, "Have never, nor do they intend to assign any of their students solos." The remaining 12 percent of those who did not apply this methodology stated that they would do so if the circumstances warranted.

Of the 82 percent who reported that they used solo experiences: 11 percent assigned them to *all* of their students; 40 percent assigned them to *most* of their students; 31 percent assigned them to a *very few, select* students.

The average years of orientation and mobility teaching experience of those who responded to the questionnaire was five years. Graduates of seven university orientation and mobility training centers were represented. Breakdown by university shows 22 from Western Michigan, 17 from Boston College, eight from California State at Los Angeles, seven from San Francisco, and two from Pittsburgh. Nine respondents were agency trained but certified.

Most of the instructors who required solos limited these experiences to the very capable student. Only a very few felt that some special adaptation in planning could be made for the less capable. They felt that even though these students had limited objectives regarding future travel independence because of physical, emotional, or mental characteristics, they might well benefit from controlled, limited experiences. For example, a solo may involve the less capable in tasks commensurate with their abilities,

such as a trip around the block or to another office in a training center.

Many instructors who used solos felt that they should be required in the latter stages of training. However, a small minority recommended beginning as early as possible to minimize this sudden expectation of independence once the student finishes training. They therefore recommended exposure to solos throughout the training program.

### Variables in the Solo Experience

Figure 1 illustrates the major variables which comprise a solo. These are 1) stage of training, 2) training area, 3) planning, and 4) supervision. In Figure 1, the solo becomes more difficult and advanced as the numbers on the continuum increase to the right. Any combination of numbers is possible. For example, a student in residential training may have his experience in a totally familiar area with little, but at least some, teacher assistance. A later solo in residential travel might be in a less familiar area with very little, if any, teacher assistance in planning. As a student displays consistent competency in a stage of training, the instructor may challenge him with more advanced tasks thereby giving gradual tastes of independence. Matching the above variables with the student's level of competency appears to minimize the chance of negative results.

**NECESSARY PRECAUTIONS** The precautions the instructor takes before and during the solo are absolutely essential for the student's safety, for the accomplishment of objectives, and for the instructor's protection against possible charges of negligence. The following list was suggested by lawyers and orientation and mobility instructors:

1. Engage in a detailed evaluation of the student by review of records and direct observation.
2. Obtain written permission from the student himself or from his parents (if the former is not of legal age).
3. Notify administrators, parents, and the student's family of intent, purpose, risk, and rationale.
4. Guarantee the student's understanding of the above.
5. Assist with and monitor the student's planning.
6. Observe student in a "dry run" in which he thinks he is alone to determine his reactions.
7. Highly individualize experience to each student's goals and capabilities.
8. Take daily notes to document the evaluations, instruction, and preparation provided.
9. Provide the student with auditory, tactual, or visual maps as necessary.
10. Check route to be taken just before the student's leaving to insure that there is no change, such as construction work, which the student may not be capable of handling.
11. Insure that the student knows the route and other necessary information such as street names, bus numbers, and directions to be taken.
12. Insure that the student knows the geographical boundaries and chronological limitations imposed by the instructor.
13. Do spot checks along the run, especially at critical places, e.g., bus transfer points and busy intersections.
14. Have the student plan for contingencies in case he is for some reason unable to complete the experience, e.g., student knows the location and operation of pay phones, the agency or school phone number and address, and has money for a call, taxi, or bus.



**“... negligence is that conduct which falls below a prescribed standard established for the protection of others.”**

A few instructors replied that they would not apply more precautions than those given above as they felt that they were already too cautious. One stated that he felt confident in not applying any more because, should the student be involved in an auto-pedestrian accident, the driver of the auto would be ultimately responsible in light of white cane legislation. When one considers the many possible injuries that might occur to the unescorted traveler, incidents with vehicles, though possible, are by no means the only dangers. For instance, the traveler may bump his head on a stationary object. In such cases no other person is involved, and therefore no one can be held liable.

**SURVEY OF LAWYERS** No incidents of injury to a visually handicapped traveler, or subsequent charges of negligence could be found in a review of literature or in the questionnaires returned. For this reason, in absence of a legal precedent, a detailed hypothetical situation in which a student was injured while on a solo experience was sent to lawyers. Numerous questions were asked of the lawyers, but the basic inquiry was, “In this case was there negligence on the part of the instructor?”

In the hypothetical situation, a competent student was assigned a solo toward the end of the training program. On crossing a busy street he veered slightly toward the parallel street. A driver coming from behind in the same direction sounded his horn to warn the traveler. This startled the student and he instinctively side-stepped and tripped on the curb, injuring his arm. His parents brought legal charges against the instructor. The precautions taken by the instructor in the hypothetical situation were basically the ones recommended previously.

#### **Legal Opinions in a Hypothetical Situation**

Out of the 25 lawyers (including two law students) who responded to the questionnaire, all but one felt that the instructor was probably not negligent. The dissenting lawyer felt that the student, by law, should have been under the immediate supervision of the instructor. The following is a sampling of responses from the lawyers:

“I do not believe that a court would impose an additional duty on the instructor to accompany the student at all times where it appears that the purpose of the instruction is to achieve a level of competency, later self-sufficiency, and independence.”

“Ordinary care was exercised in supervision of the client. Risks are involved in the process of training a blind person to travel independently.”

“It does not appear that the presence of the instructor would have prevented the accident.”

“I do not believe that contributory negligence applies. The boy acted as a reasonable blind person would for his safety, it appears. He would contribute to his own negligence if he did not apply suggested techniques for his well-being as he had been instructed. For contributory negligence to apply the person must be of sufficient age, intelligence, and maturity.”

“Assumption of risk could apply where he, the injured party, 1) upon full understanding of the danger, and 2) with sufficient reflection upon the consequences, 3) freely consented to risk the injury in acting or omitting to act as he did.”

To be negligent one must be *proven* negligent. According to the lawyers who responded to the questionnaire, negligence is that conduct which falls below a prescribed standard established for the protection of others. This hypothetical standard is what a “reasonable and prudent” teacher in this situation would or should have done. Determination of whether one’s acts are reasonable or prudent can be carried out only by a court of law. Other orientation and mobility instructors, forming a “professional panel of peers,” would be called to testify or establish a standard of what constitutes reasonable, prudent, or accepted professional behavior. It would then be up to the jury to determine if the instructor acted in accordance with these standards.

It was pointed out that before negligence can be proven four conditions must be met: 1) the instructor must have owed the student a duty (supervision); 2) there was a failure on the part of the instructor to discharge that duty; 3) actual injury must have occurred; 4) a foreseeable, close causal connection between the failure and injury must be shown.

From discussion with orientation and mobility instructors, many individuals are apparently under a misconception. They believe that to be proven negligent they must be grossly negligent. From available information, this is not necessarily the case. Many lawyers stated that it is impossible to predict the decisions made by juries. An administrator of an agency serving the blind stated that one must consider the misconceptions that a jury might have regarding handicapped people. Included in this is the overprotectiveness of and sympathy for the injured blind person. These emotional feelings may far outweigh any logical testimony presented. As one orientation and mobility instructor cautioned, “What appears to be obvious prudent behavior to us can be made to look like gross negligence by a silver-tongued lawyer, who unfortunately happens to be against you in court.”

#### **Degree and Character of Supervision**

In discussing solos the question of supervision appears to be of paramount importance. Rosenfield (1940) explains:

“A question constantly posed revolves about the degree and character of supervision required... [and one of the] basic questions always is ‘had there been a more adequate degree of supervision, could the specific accident have been avoided?’”

In the review of literature the following cases were found regarding supervision. Since nothing was found which directly involved orientation and mobility instruction, these cases refer to regular school instruction. A lawyer stated that a mobility teacher has the same basic responsibility toward his student as does any other teacher. Therefore, it might be of benefit to look at these cases:

In *Sartariano v. Sleight* (1942) negligence of the teacher was determined for the failure to properly supervise pupils crossing a street.

In a California court decision (*Forgnone v. Salvatore Union School District* (1940)) it was found that teachers must supervise students during school hours to provide for their safety.

In *Gattavara v. Lundin* (1932) it was ruled that the responsibility for supervision must not be permitted to become too severe or strict since it would lead to an “unreasonable curtailment of physical education activities.”

An English court (*Purkis v. Walthamstow Borough Council*, 1943) stated, “No amount of reasonable supervision will prevent some accidents.” (This sentiment was reflected by



a California court [Underhill v. Alameda Elementary School District, 1933] in a similar case.)

According to the Sayers v. Ranger decision (1951):

"Pupils engaging in certain school activities, like athletics, assume normal risks involved. A high school freshman in a physical education class fell and broke his arm when he made a leap frog jump over a gymnasium horse. The teacher had instructed the pupil and the others in the class on how to use the horse, had demonstrated the jump, had warned them of possible dangers, and had told them not to try to jump if they did not think they could do it. Since the pupil knew of the danger involved and assumed the risk, the teacher was not liable for the injury."

In Nestor v. New York (1961) no negligence was found. In this case, a teacher was approximately 30 feet from an accident on the playground in which the plaintiff was hit by a bat swung by another boy. The court based its decision on the grounds that there was no negligence or lack of supervision, since there was no requirement that the teacher have under constant and unremitting scrutiny and precise spots where every phase of play activity was being pursued. The decision also stated that the action was so spontaneous that the teacher could not have anticipated the potential danger.

In Wright v. San Bernardino (1969) the teacher was engaged in other work in the line of duty when a student was injured by a thrown ball. Non-suit was proper, according to the court, because the time between the plaintiff's sudden act and the injury was so short that even if the teacher had been present he would have had no opportunity to recognize a new hazard in time to prevent the injury.

The National Education Association (1963) found that courts have ruled similarly in other cases. The following quotation from their report deals with the question of what constitutes adequate supervision:

"Absence for a few minutes is not likely to be interpreted as negligent lack of supervision, especially if the teacher's absence was connected with the performance of duty. It has been held that temporary absence of a teacher from the classroom did not render the teacher, school principal, or school board liable to a pupil who was struck in the eye by a pencil thrown by a classmate. Although the evidence was in conflict, the court held that whether the teacher was away from the classroom for over an hour or only a minute was wholly immaterial, as there was no causal connection between the accident and the teacher's absence; the legal cause of the injury was the unforeseen act of the pencil-throwing pupil, which could hardly have been anticipated in the reasonable exercise of the teacher's legal duty toward the injured pupil."

When asked, "In what activity do you engage while your student is on a solo," most of the instructors said that they performed tasks in line with their duties when the solos occurred during working hours. For example, taping canes, scheduling, report writing, and administrative duties were mentioned. One instructor took a coffee break. A frequent response was, "Worry, pace the floor, and pray!"

### Codification of Standards

A lawyer recommended that the administration be approached with the request that if solos are to be applied, they be adopted in writing as a regular and integral part of the educational program. This serves as a precaution in that it will show advanced planning. It will additionally indicate the importance of these experiences as a vital, accepted, and necessary part of a training program.

Another member of the legal profession advised:

"The profession of orientation and mobility instructors should con-

sider codification and distribution of a set of standards. . . . These standards should seek to establish the standard of reasonable care so that instructors can have some assurance that actions taken in compliance with these standards will not be found negligent simply because of the testimony of some of the other members of the profession."

Concerning consent slips (known legally as "informed consent concept") one lawyer cautioned against complete reliance on them. He pointed out that they do not waive liability or provide blanket immunity from prosecution. These slips merely give consent for a student to participate in an activity. Parents may not sign away the rights of their child. The child upon reaching legal age can sue to collect damages in his own name. Permission slips are still useful even though they cannot waive liability. They do show that the activity was planned in advance. Also they are written evidence of the intent and rationale behind the activity. In court, documents which show advanced planning can be very useful.

**PROTECTION AGAINST SUITS** The best protection is to apply precautions which minimize the chance of student injury. Even though an instructor acts in a most prudent and reasonable manner, injuries may still occur. Should this happen and legal action be brought against the instructor, what protection does the instructor have?

Basically the instructor may be protected by: 1) liability insurance provided by the employer; 2) clearly defined assurances that his employer will cover the costs of both legal defense and damages; 3) by liability insurance obtained through the private initiative of the individual instructor. A discussion of each of the above follows.

### Liability Insurance Provided by the Employer

According to the common law of governmental immunity, or non-liability principle, one cannot sue the agency or school district (Fuller, 1941). Where this concept still applies, the burden falls on one individual—the teacher. This sovereign immunity originated in the Middle Ages and is expressed as, "The King can do no wrong." Schools and governmental agencies, being a branch of the government, can also "do no wrong." Unfortunately, this immunity does not extend all the way down to the teacher. Many sources (Schaerer & McGhehy, 1960; Lovell v. School District No. 13, 1943) feel that this doctrine is antiquated. As a result of this growing dissatisfaction, nearly all states have waived this immunity by statute or judicial interpretation. It must be remembered that when a state waives its immunity it is giving the public the right to bring charges against it. This, however, does not completely protect the instructor. The injured party may still seek damages from the instructor in addition to the legal action taken against the governmental agency. Waiving immunity does give the right for others to sue the state, but it does not necessarily provide legal protection for its employees.

In other states sovereign immunity is upheld, but these states are permitted by statute to carry liability insurance for their employees. In effect they then share liability with the teacher (Schaerer & McGhehy, 1960, p. 31).

Closely associated with the doctrine of governmental immunity is the English precedent of charitable, non-profit immunity (Leibee, 1965). Many private agencies serving the blind would fall under this category for they do receive donations from benefactors. The reason behind the charita-



## **“Individual instructors should continue to take adequate and necessary precautions as the best insurance against student injury and possible charges of negligence.”**

ble immunity is that donations would be discouraged out of fear that the gifts would have to be used to pay legal claims. In some states, this immunity prevails unless changed by state or local statutes (*Ayers v. Board of Education*, 1937; *President and Directors of Georgetown College v. Hughes*, 1942). The employees of private agencies would be liable for their own acts just as instructors in federal, state, or local schools would. Recently some states have repudiated this charitable doctrine of immunity. Mainly it was felt that with the advent of liability insurance, the benefits to its clients would no longer be in jeopardy as donations would need not be used for legal fees (*Haynes v. Presbyterian Hospital Association*, 1950).

### **Assurance by the Employer of Protection against Liability**

Some states have adopted a “safe harmless” concept. Here the state gives the school districts or other governmental agencies permission to “save” the teacher from the possible financial burden of a court settlement by paying the “harmless” teacher’s debt. For teachers who “act in good faith” (another hypothetical standard) legal representation is provided and damages are paid should negligence be proven. Assurances are not provided when an employee does not act legally in “good faith” or within the scope of his employment.

Under this category are states who are, in a sense, “self-insuring,” and who would pay legal fees for their employees “out of their own pockets.” These states have sufficient assets to assume the burden of payment without purchasing liability insurance from an outside source.

### **A Recommendation to Instructors**

Individual instructors should request their employers to supply answers in writing to the question of the exact status of their legal liability protection. To find out that he is not covered by an employer is indeed very valuable information. With this information the instructor at least clearly knows his status. He may then take individual action, such as obtaining legal liability insurance protection for himself.

It is beneficial to have any assurance of protection given in writing. Oral assurance may be meaningless later when it is necessary for support and protection. If an administrator is not certain of the legal liability status, he should be asked to obtain this information from his superior, his school’s or agency’s legal counsel, a city attorney, or a state attorney.

An insurance agent recommended periodically rechecking with an employer to see that the guaranteed coverage has not changed. He explained that many states or agencies obtain insurance protection from companies who bid competitively. It is possible that if these companies bid yearly, coverage may be reduced or in some way changed in the interest of saving money.

In determining how many instructors were covered under their employer’s liability insurance, much uncer-

tainty was apparent. These were typical responses: “I’m covered for sure, I think,” and “I’m positive, but I have nothing in writing.”

In some cases where the school or agency afforded no protection for its employees, a few instructors reported coverage from another source. This protection often comes automatically through membership of professional organizations, such as state educational associations. Teachers’ unions often afford this protection.

The American Association of Workers for the Blind recently contracted liability protection for members, but according to available information, not many individuals took advantage of this opportunity. It appeared that this policy was very good considering the range of coverage for the relatively small premium. Either instructors were assured of protection from another source, or they felt confident that there was very little chance of legal action being brought against them.

### **Few Seek Personal Coverage**

Only one instructor in the survey had contracted insurance with a private insurance company. Many instructors stated that they were covered under their homeowner’s and renter’s insurance. It must be emphasized that the liability provision in most of these policies has a business pursuits exclusion. In other words, the liability protection would not extend to an individual while engaged in duties of his occupation. According to some insurance companies which were contacted, liability protection can be expanded to cover the individual while he is at work. This protection can be added on to an existing homeowner’s or renter’s policy at a very small extra cost. Two companies were asked to give estimates. The average cost per year for addition to an existing policy was approximately \$21.00 for coverage up to \$300,000.

When asked to recommend adequate limits for protection, the insurance agents stated that this would vary from state to state. They suggested calling a local agent or lawyer to recommend adequate coverage for each individual geographical area. These agents agreed that individuals should determine if their homeowner’s or renter’s policy has a business pursuits exclusion.

It would be convenient for all concerned if a state by state listing could be made of the existing status of the law. This was one of the original intents of the project, but does not now appear practical because of recent, numerous changes in various state statutes. Any information given now would quickly become outdated.

### **Liability Not Explained to Instructors in Training**

An inquiry was made to determine whether or not the implications of legal liability were covered as part of the university training programs for orientation and mobility instructors. The general consensus was that most graduates had very little, if any, exposure and discussion relating to this subject. Those that had exposure stated that it was due to their own independent solicitation of information. This was done while in school and, for the most part, following graduation. On the basis of this sampling it is suggested that careful consideration be given to implementing more exposure to this area in the university teacher-preparation programs.

While no incident of student injury and subsequent charge of negligence could be found, one administrator voiced the belief that with more and more visually hand-



icapped individuals being trained in orientation and mobility, it is only a matter of time before this is given the real test—in court. Let us hope this will never occur. However, individual instructors should continue to take adequate and necessary precautions as the best insurance against student injury and possible charges of negligence.

Appreciation is expressed to all orientation and mobility instructors, administrators, and members of the legal profession who took the time to complete the questionnaires. Special thanks are extended to the following individuals for their very useful assistance and cooperation: Mr. Robert A. Eisenberg, director, Orientation and Mobility Training Program, California State University at Los Angeles; Mr. Frank Ryan, formerly of the California State University at Los Angeles, Orientation and Mobility Training Program; Mr. Loyal E. Apple, former chief, Western Blind Rehabilitation Center, Veterans Administration, Palo Alto, California, now executive director, American Foundation for the Blind; and Mr. Kenneth L. Tapp, orientation and mobility instructor, Wisconsin School for the Visually Handicapped, Janesville, Wisconsin.

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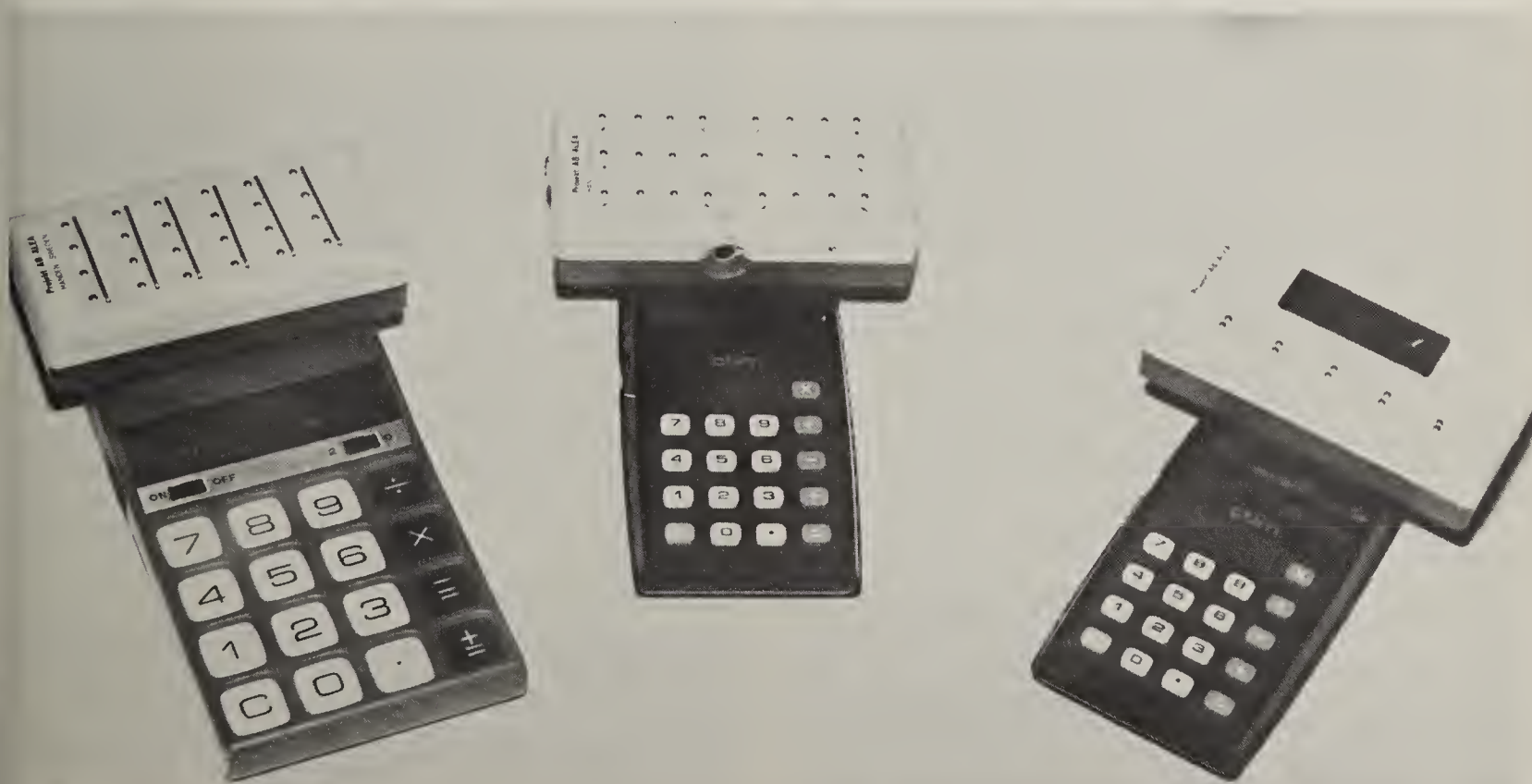
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## Calculator Attachment for Visually Handicapped Persons

A new device which allows visually handicapped persons to use electronic mini-calculators has been developed by Project AB Alea, Handen, Sweden. The apparatus, which can

be connected to most calculators on the market by a special conductor joint, has a display panel fitted with metal studs that produce sound signals when touched. The frequency and position of the signals indicate the calculated results in up to 12 digits. Attachments for insert earphones or vibrators allow the device to be used by deaf-blind persons. A second model, with a large digit display, is also available for persons with low vision.





# Standardized Tests for Visually Handicapped Children: A Review of Research

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**Abstract:** *Research concerning the adaptation and development of tests for visually handicapped children is reviewed. Early developmental work with verbal tests is examined as well as the more recent work undertaken to develop performance type tests. Finally, work on the validation of both verbal and performance tests, as well as the relationship of such tests to academic performance, is described.*

■ Many standardized tests have been specifically designed or modified for use with visually handicapped children (Bateman, 1965; Goldman, 1970). In the United States, adaptations of the Binet scales have been used with visually handicapped children nearly as long as they have been used with sighted children (Hayes, 1962). More recently, some research has investigated the use of performance type tests to supplement the verbal scales already available for visually handicapped children.

This review first examines early developmental work with verbal scales and then focuses upon the development of performance type tests. The final section reviews studies concerned with the validation of the verbal and performance tests examined in the first two sections.

**EARLY TEST DEVELOPMENT** In 1914, Irwin and Goddard (Hayes, 1962) modified the 1911 edition of the Binet scales for use with visually handicapped children. They eliminated from the original scale those tests which were not appropriate and added items from other tests that were then in use. Selecting the items and arranging them according to year groups was done according to Irwin's personal judgment, as he himself was blind. Eventually, Irwin and Goddard concluded that many of the items selected were not suitable for use with visually handicapped children and that many of the items had been placed at the wrong age level.

During this same period, Haines (1916) constructed a point scale from the Binet-Simon Year Scale. He also deleted what he felt were inappropriate items and made what he thought were appropriate substitutions, apparently using his personal judgment. A subject could obtain a maximum of 100 points; point scale achievements were calculated for different chronological ages using a sample of 142 subjects.

It is interesting to note, especially in the light of the appalling paucity of empirical data, how Haines used his new scale. The following quote illustrates a major use found for his scale and provides insight into the prevalent attitudes towards such tests.

"By this means of comparison [Binet Point Scale] of each pupil's mental ability with that of every other and with the year group averages, there was no difficulty in rating each one with fairness and in determining with considerable accuracy who were the feeble minded. . . . As a result of this examination thirteen [blind children at the Ohio State School for the Blind] were eliminated from the school" (Haines, 1916).

In 1919, Haines published new norms for his point scale by adding 86 new subjects and claimed more accuracy in detecting "feble-mindedness." If it were so difficult to determine who the "feble-minded" children were without such a test, one might well ask why it was necessary to eliminate those children from school at all. Unfortunately, using tests merely to label children is still common in the schools and little is done to use the test results as a guide for developing an instructional program sensitive to the individual child's needs.

Many adaptations of the Stanford revisions of the Binet age scales were made by Hayes (1941). His 1923 "scissors and paste" adaptation was based upon careful examination of more than 1,200 tests. Item revisions or substitutions were cut from a kit devised by Hayes and pasted over the items to be changed or deleted from the Stanford-Binet test manual. In 1930, a new adaptation was begun based upon data from an additional 1,600 test protocols. Hayes had not



completed his statistical studies on the Hayes-Binet when the 1937 Terman-Merrill revision of the Binet tests appeared.

Hayes (1941) then adapted the 1937 Terman-Merrill revision of the Stanford-Binet, which became known as the Interim Hayes-Binet Intelligence Test for the Blind, 1942 (IH-B). It was originally intended to be a step between the 1930 Hayes-Binet and a more refined instrument that he was planning to develop later. However, no later test was developed and the IH-B is still used in the form in which it was introduced in 1942.

One frequent criticism of Hayes' adaptations of the Stanford-Binet has been that no thorough-going standardization of them has ever been published (Hayes, 1941). The IH-B was an attempt to remedy this deficiency. Hayes intended that the IH-B be used to compare children in a school for the blind with other children in schools for the blind and not with sighted children. Davis (1962) pointed out that no standardization data exist for the IH-B. Thus, it is not clear exactly how Hayes intended such comparisons to be made.

During this same period, Hayes (1941) was developing adaptations of the Stanford Achievement Test (SAT). Early work done at the Perkins School for the Blind (1933-34) culminated in the publication of a brailled version of the SAT along with directions for giving the tests and the necessary time limit increases. Hayes (1941) found that the SAT showed the same high reliability when used with blind children as it did with sighted children. He concluded, after examining several years' data from six residential schools, that the norms published for sighted children could be used as standards for blind children. Data reported on 600 children in grades four to nine showed that visually handicapped children were able to achieve within sighted norms. Achievement testing has since become a regular part of the academic program at many residential schools across the country (Nolan & Ashcroft, 1959).

### Wechsler Scales

Hayes (1950) examined the validity and reliability of the Wechsler Bellevue Form I Scales (W-B) for use with the visually handicapped. He reported correlations between the IH-B and W-B ranging from 0.88 to 0.96. Reliability figures reported by Hayes for the W-B ranged between 0.84 to 0.90 and for the IH-B between 0.90 and 0.93. Both scales yielded a fairly normal distribution of scores and Hayes concluded that there was sufficient evidence to justify use of the W-B with visually handicapped children.

The Wechsler Verbal Scales have received wide acceptance and have been used extensively with little or no modification (Davis, 1970). Wechsler (1939) stated that the verbal scales were suitable for use with blind subjects, although he presented no data to support that assumption. The Wechsler performance items have not been used as they require vision.

It is apparent from this review that the major weaknesses of the tests used so far with visually handicapped children are lack of normative data for visually handicapped subjects, item inappropriateness, and an over-emphasis of verbal abilities (Bateman, 1965; Davis, 1962; Rawls, 1954).

**PERFORMANCE INTELLIGENCE TESTS** Despite the acceptance and wide usage of the Wechsler Verbal Scales and the IH-B, many workers with visually handicapped children have expressed regret at the completely verbal makeup of these tests. Cutsforth (1951) pointed out

that many blind persons develop pseudo-verbal skills which may inflate verbal mental measurements. Claassen (1954), supporting this point of view, stated that blind children often have a highly developed aural memory on which they sometimes rely as a substitute for thinking. Disproportionately high scores on the Digit Span subtests of the Wechsler Scales and similar sections of the IH-B lend support to this position (Tillman, 1967).

Although performance tests have been successfully used for many years in testing the psychological capacities of sighted children, there has not been much research into the use of such tests with visually handicapped children (Goldman, 1970). Bauman (1947) developed the Non-Language Learning Test which was designed to measure, through successive trials, a visually handicapped subject's ability to follow rules, to work with moderately complex form relationships, and to develop concrete concepts. The test consists of a small form board with blocks cut into patterns that will fit into recesses in the board only in certain combinations. The examiner teaches the subject the best series of moves for putting the block pieces into the recesses. The subject is then given three test trials to demonstrate his learning of the correct series of moves and his ability to discriminate forms and match shapes by touch. Bauman reported low positive correlations with the W-B verbal IQ and a clear differentiation between successfully employed and unemployed blind groups.

### Blind Learning Aptitude Test

Newland (1961) began development of the Blind Learning Aptitude Test (BLAT) in 1952, which was published by the American Printing House for the Blind in 1969. This test was empirically developed for use with visually handicapped children and was not adapted from a test for sighted children. The test consists of a series of embossed patterns of varying complexity. The subject is required to discover relationships or find a missing part of an identifiable pattern through cutaneous-kinesthetic exploration involving no braille reading ability. Verbal responses are not required and verbal communication demands are minimized. Newland (1971) stated that the nature and extent to which the BLAT may contribute to the assessment of blind children has yet to be determined.

Adaptation of the Koh's Block Design, in which the Koh's material was adapted by roughening sections of the wooden blocks, was investigated by Wattron (1956). This adaptation correlated 0.84 with the IH-B IQ and he felt that the results justified further investigation into such performance tasks.

Anderson (1961) developed a tactual copy of the Raven Progressive Matrices that was intended to meet the need for a nonverbal intelligence scale for visually handicapped children. The matrices were constructed of heavy materials and the stimulus patterns were reduced to essential relations, thus avoiding an emphasis on fine tactual discriminations. He found that the test could be successfully administered to blind children above age eight and that it correlated quite highly with the verbal scale of the Wechsler Adult Intelligence Scale (WAIS).

### Haptic Intelligence Scale

Shurrager and Shurrager (1964) developed the Haptic Intelligence Scale for the Adult Blind (HIS). Their purpose was to provide a performance scale for blind adults which measures abilities not adequately assessed either by verbal tests or by existing performance tests for visually handi-



## **“Test scores alone cannot tell the psychologist or the educator how to proceed with the educational planning for a child.”**

capped persons. More than 700 blind subjects (5/200 acuity or less) from all walks of life and geographical areas across the United States were included in the standardization.

The HIS consists of six subtests which require the subject to make tactual discriminations to discover relationships haptically or to identify missing parts from familiar objects. The six subtests, Digit Symbol, Object Assembly, Block Design, Object Completion, Pattern Board and Bead Arithmetic have the appearance of being a three dimensional version of the WAIS performance scale, although the authors clearly warn against assuming that these subtests tap the same abilities for blind persons as the WAIS performance does for sighted persons. A correlation of 0.65 between the HIS and verbal WAIS is reported by the authors (Shurrager & Shurrager, 1964).

Nolan and Morris (1965) developed the Roughness Discrimination Test (RDT) as a reading readiness test for braille. The test is composed of 69 cards upon which four pieces of sandpaper are mounted. Three pieces are alike in roughness and one is coarser. The child must find the piece of sandpaper that feels different from the others. The authors reported a split-half reliability coefficient of 0.94. They found no significant differences between boys and girls in their ability to make tactual discriminations and found only a moderate correlation with IQ.

### **Perkins-Binet Intelligence Tests**

In response to the need for an individual intelligence test that contained both verbal and performance items, Davis (1970) developed the Perkins-Binet Intelligence Tests for Blind Children (P-B). The P-B has two forms, Form U for subjects with usable vision and Form N for subjects with no usable vision. Approximately 25 percent of the items in Form U and 30 percent of the items in Form N are performance type items. The standardization sample included 2,187 subjects in residential and day school programs across the country, with a minimum of 200 subjects at each age level from five to 15 years. Both forms are age scale tests which yield MA and IQ scores.

Since no data on the reliability and validity of the P-B had been reported by Davis, a preliminary analysis was carried out by the present writer (Coveny, 1972). A split-half reliability coefficient of 0.96 was found for Form N and 0.94 for Form U, both significant at  $p < .01$ . Correlations with the verbal Wechsler Intelligence Scale for Children (WISC) were 0.86 for Form N and 0.74 for Form U ( $p < .01$  for both forms). The P-B appears to be a highly reliable test that to some degree taps the same abilities as the verbal WISC.

### **Psycholinguistic Abilities**

Gibbs and Rice (1974) investigated the psycholinguistic abilities of visually handicapped children on the revised Illinois Test of Psycholinguistic Abilities (ITPA). The visually handicapped children in this study were moderately penalized overall on the ITPA score, in particular on visual subtests, with the exception of visual sequential memory. The authors further reported that children with mild visual

handicaps were just as apt to have difficulty with visual subtests as those with severe visual impairments.

While the ITPA has enjoyed wide usage as a test for the differential diagnosis of learning disabilities, current research has raised serious questions regarding the validity of a psycholinguistic approach to learning disabilities (Hammill & Larsen, 1974; Newcomer & Hammill, 1975; Hammill, Parker & Newcomer, 1975). Thus, the validity of using the ITPA with visually handicapped children, where the confounding variable of visual impairment is introduced, is highly questionable.

**PREDICTORS OF ACADEMIC ACHIEVEMENT** Test scores alone cannot tell the psychologist or the educator how to proceed with the educational planning for a child. A psycho-educational evaluation should be practical and lead to a definite action or procedure. After such an evaluation, the teacher, counselor, parent, or whoever is concerned, should know more about what to do for a child than he knew before (Bateman, 1965). It is therefore incumbent upon the evaluator to use instruments and methods that predict academic behavior and to translate them into specific academic procedures (Valett, 1965).

There is little research explicitly concerned with the prediction of academic achievement for visually handicapped children (Newland, 1970; Goldman, 1970). A large portion of the research reviewed has been concerned with correlations between WISC and IH-B or with an item analysis of WISC subtests.

Gilbert and Rubin (1965) compared the scores of 30 blind children on the verbal WISC and IH-B. They found a mean IQ of 87.5 with a standard deviation of 17.8 for the WISC and a mean IQ of 75.4 with a standard deviation of 14.9 for the IH-B. The mean difference of 12.1 IQ points was not significant. A correlation of 0.90 between the two tests was reported.

Hopkins and McGuire (1966) investigated the validity of the verbal WISC as a measure of intellectual functioning for visually handicapped children. They found in a comparison of the WISC with the IH-B that, although the tests were measuring essentially the same abilities and both yielded fairly normal distributions of IQ scores, the scores were not directly comparable. They found a significant mean difference in favor of the IH-B and substantially different standard deviations for the two tests.

Tillman (1967) investigated the performance of blind and sighted children on the verbal WISC. His results showed that blind children scored about the same as sighted children on the Arithmetic, Information and Vocabulary subtests but did less well on the Comprehension and Similarities subtests. Blind children generally obtained their highest scores on the Digit Span subtest.

Lewis (1957) reported one of the few studies that investigated the relationship of the IH-B and verbal WISC to academic achievement. She found a correlation of 0.94 between the two scales and concluded that they were essentially measuring the same abilities. She reported a correlation of 0.45 between IH-B IQ scores and elementary school grade averages; a correlation of 0.46 between IH-B IQ scores and junior high school grade averages; and a correlation of 0.53 between senior high school grade averages and IH-B IQ scores.

Although a positive relationship was found between mental ability as measured by the tests and academic achievement, the study dealt only with concurrent validity



and not with the prediction of academic achievement. As Helmstadter (1964) has pointed out, predictive validity is more useful educationally than concurrent validity in planning educational strategies.

Rich and Anderson (1965) used the WISC verbal scale and a tactual adaptation of the Raven Progressive Matrices, the Children's Tactual Progressive Matrices (CTPM), to predict grade point averages for 115 blind children (5/200 acuity or less). The investigators found correlations of 0.51 between the verbal WISC and grade point averages and 0.36 between the CTPM and grade point averages. Multiple correlations of the WISC and CTPM with grade point averages yielded a correlation of 0.55. Rich and Anderson concluded that the verbal WISC and the CTPM may be combined to provide an efficient technique for the prediction of grade point averages. However, this study was also concerned only with concurrent validity, and the conclusion that the tests can predict grade point averages is not justified by the data. The data merely show a positive relationship between test scores and grade point average.

### **Roughness Discrimination Test**

The Roughness Discrimination Test (RDT) is primarily concerned with the prediction of braille aptitude in beginning grade school children (Nolan & Morris, 1965). RDT scores obtained in the first two months of first grade were correlated with reading criteria obtained during the final two months of the same school year. Reading criteria were obtained from a braille adaptation of the Gilmore Oral Reading Test. The RDT was found to predict reading ability as measured by the criteria. Multiple correlations of RDT scores and IQ scores with the reading criteria were higher than when RDT scores or IQ scores were used alone as predictors. The authors concluded that the RDT can be used in determining the level of reading instruction that would probably be most beneficial to individual first grade students. Goldman (1970) suggested that the findings of Nolan and Morris show the possibility of using performance tasks as predictors of academic achievement.

Strietfeld and Avery (1968) investigated whether verbal achievement, as measured by the verbal WAIS, or performance IQ, as measured by the Haptic Intelligence Scale (HIS), was more predictive of academic success for the visually handicapped. The results indicated that for totally blind individuals the WAIS and HIS are equally good at predicting grades in a population of students at a residential school for the blind. For partially sighted persons, the verbal WAIS was a better predictor. The 31 subjects in this study were between the ages of 16 and 19 because both the WAIS and HIS are adult scales. If predicting academic achievement is to have any relevance for educational planning, it must be done at a much earlier age.

Coveny (1973) examined the effectiveness of the Perkins-Binet (P-B) and the verbal section of the WISC as predictors of academic achievement for visually handicapped children. A multiple regression analysis using Stanford Achievement Test (SAT) subtest scores and teacher grades as criterion variables revealed that both the P-B and verbal WISC, were highly predictive of academic achievement. The verbal WISC however, consistently accounted for more criterion variance than the P-B. Coveny pointed out that the greatest shortcoming of the P-B is the age scale format which makes the development of a profile of abilities difficult, if not impossible. Thus, in its

present form, the P-B may have some value as a purely clinical tool but is of limited value as a prescriptive educational tool.

### **Intellectual Assessment to Academic Success**

Many studies have been made correlating tests of intellectual capacity and tests of academic achievement for sighted children. Littell (1960) reviewed eight studies correlating WISC scores and achievement test scores for various groups of sighted children. He concluded that the WISC relates quite well to scores on certain types of academic achievement tests and that the verbal scale seems to relate to test-measured academic achievement better than the performance scale does.

Hayes (1962) correlated Hayes-Binet MA scores with SAT scores for blind children. He reported correlations ranging from 0.75 to 0.95. Correlations of the Wechsler Bellevue (W-B) without the Digit Span subtest and SAT scores ranged from 0.66 to 0.70. A correlation of 0.82 was reported between the W-B and SAT when the Digit Span subtest was included. Hayes' data, although collected over a period of years, were concerned with concurrent validity and not predictive validity for specific subject matter areas.

Hect and Newland (1965) compared IH-B MA, WISC MA, and BLAT scores with SAT scores for three age groups of blind children in a residential school. They reported correlations of 0.79 between WISC MA and median achievement and 0.84 between IH-B MA and median achievement. The investigators found that the BLAT, which measures nonverbal tactual perception, was a useful supplement for the verbal tests. The authors concluded that such measures as the IH-B, WISC, and BLAT can be useful in educational planning. While this study was not concerned with predictive validity, Hect and Newland pointed out that an important consideration in educational measurement is the predictive power of test scores. Reasonable evaluations of a child's academic potential will be possible only when valid predictive measures are available.

Newland (1964) and Goldman (1970) have stressed the need for research explicitly concerned with the prediction of academic achievement for visually handicapped children. Newland (1964) stated that educators of blind children have had to discuss the problems and procedures of prediction in terms of plausible "psychological hunches" and have had little research evidence to support them.

**SUMMARY** The preceding review of the research showed that most of the individual intelligence tests that have been adapted or developed for visually handicapped children were predominantly verbal in nature. In recent years, some work has been done to develop performance type tests. These tests have proven valuable additions to the verbal scales presently being used (Goldman, 1970; Hect & Newland, 1965; Nolan & Morris, 1965). The problem of predicting academic achievement through the use of such tests has been almost entirely ignored by researchers working with visually handicapped children, although many references can be found to the importance of such research (Goldman, 1970; Newland, 1964a, 1964b). Only two studies reviewed (Nolan & Morris, 1965; Coveny, 1973) were explicitly concerned with predictive validity.

Prediction of academic performance is only the initial step in planning an academic program for a visually handicapped child. The instrument used in an evaluation must also lead directly to an appropriate educational plan. With the movement of special education away from segregated



classrooms, tests that merely proffer global standard scores will have little relevance for individualized programming. Also, diagnostic tests which are of questionable validity for sighted children will not be any more valid when adapted for visually handicapped children.

Research efforts should be directed towards determining: 1) The contribution of various types of performance items to the predictive validity of individual intelligence tests for visually handicapped children. 2) The necessity of having different scales to predict academic achievement for braille readers and large print readers. 3) The feasibility of developing for existing tests a profile of intra-individual differences which could be directly translated into specific instructional procedures.

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# Personal and Professional Reactions to Blindness from Diabetic Retinopathy

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**Abstract:** *The author, a blind psychiatric nurse who offers professional counseling to newly blinded individuals, discusses adjustment to blindness from both professional and personal points of view. She considers the major aspects of adjustment to blindness to be grieving (not only over loss of vision but also, for the diabetic, future complications of the condition and a shortened life expectancy), re-valuation (value change, the development of realistic goals), the independence-dependence conflict, stigma (societal prejudice and ascribing to blind persons stereotyped characteristics), communication without visual cues, and identity integration or the state of self-actualization by which the individual learns to live with his disability.*

■ Grieving, re-valuation, the independence-dependence conflict, stigma, communication without visual cues, and identity integration are major aspects of adjustment to blindness. They will be discussed from the two perspectives from which I encounter them: as an individual who has been blind for six years from diabetic retinopathy, and as a psychiatric nurse-clinician, counseling blind and partially sighted individuals, most of whom are diabetic.

I have found that the individual with diabetic retinopathy enters the first stage of grieving, that of shock and denial, and remains in this stage until he becomes legally blind or very close to it. With legal blindness, his vision is sufficiently impaired for him to believe the diagnosis, and it is then that the anger and depression of grieving set in. With the realization that blindness is impending, the individual may, for the first time, contemplate suicide. The following comments are typical: "All I feel like doing is dying." "Why does it seem so easy? One shot in the head and it would be all over." I, myself, contemplated whether I could live the rest of my life as a blind person; it seemed so overwhelming.

Another common reaction at this time is the expression of anger toward the physician: "I would have been better off if the doctor hadn't touched my eyes." Denial, anger, and depression are often expressed in one counseling session.

Grief should be dealt with as an integral aspect of rehabilitation. Deutch (Siggins, 1966) has said, "Unmanifested grief will be expressed in some form and may result in such conditions as unexplained, periodic depression." Lindemann (1944) states that the individual must be helped to grieve in order to prevent delayed or pathologic grief reactions. In my own sessions with patients, I create an environment which supports the expression of anger and depression; empathy and acceptance of anger are vital to such an environment. The expression of grief becomes the first step in rehabilitation.

**DIABETIC RETINOPATHY** Smith (1971) has said that "... in any instance of loss, any undone grieving of the past knocks at the door, together with intimations of future loss." This statement is particularly relevant in the case of the individual with diabetic retinopathy. No doubt the person has suffered losses in the past because of his diabetes. With the onset of blindness, he is usually aware of the increased probability of developing further diabetic complications. Twenty-two percent of diabetics are dead five years after being declared legally blind, and 62 percent die within seven to nine years (Daughaday & Boniuk, 1970). So in grieving over his blindness, the diabetic is also coming to terms with future complications and his own death. I think this is why the diabetic has so much anger in his grieving: who can he get mad at for all his losses? Where can he channel all this anger?

My cognizance of the role death plays in the grieving of a diabetic developed from an analysis of my own grieving. Not only was I angry and depressed about my blindness, but I was angry that I had to have diabetes in the first place; one or the other seemed enough. I realized that if my diabetes was severe enough to cause blindness, it could also cause other complications. Without reading journal material, I knew that diabetics have a shortened life expectancy. I was advised against becoming pregnant. I entered psycho-therapy to work through the tremendous anger I felt at these losses. Knowledge of such losses is essential in assisting the diabetic in confronting his blindness.



**“The individual with diabetes will be challenged with many medical adjustments throughout his life. If he meets the challenge of blindness, he will be equipped to confront other diabetic complications.”**

While grieving, the diabetic indubitably expresses guilt about having caused his blindness. This issue must be dealt with if the diabetic is to be at peace with himself. He is usually told that there is no correlation between past diabetic control and present blindness.

**RE-VALUATION** As the individual is grieving and commencing the process of rehabilitation, he is also beginning a process of re-valuation. Dembo and Wright (1956) consider the most salient factor in the adjustment to disability to be value change. If values are not changed, the superego continues to make the same demands upon the ego that it made before the disability. Since the disability prevents the individual from attaining many of the goals valued before the physical loss, he becomes frustrated, angry, and depressed. He may consider himself inferior and imperfect. In order to achieve self-actualization, the individual must change values which he can no longer fulfill.

A classic example of value change is taken from personal experience: when I found that I was legally blind, I announced to my family, “I will never learn braille or typing; I will never get a dog guide, and will never marry someone I’ve not seen.” I have now done all of these things. For me, value change came out of a necessity to grow and live with my disability. I decided to obtain a dog guide because cane travel was too slow. I wanted to read braille and type inkprint so that I could communicate in my work and study. When the right man came along, it didn’t matter that I’d never seen him.

I see such examples of value change every day with patients. As an individual is losing his vision, he may say, “I never want to use a cane. I’d be embarrassed to walk with one.” Then, when his vision is so impaired that he cannot get along without a cane, he becomes enthusiastic about mobility instruction. Likewise, a person will say “I have no need for braille.” A few months later, the same individual will say, “I’d like to learn braille so that I can play poker.” A change of attitude from one including suicidal impulses, hopelessness, and pessimism to one of hopefulness, realistic determination, and self-confidence is probably the most dramatic of value changes.

**INDEPENDENCE-DEPENDENCE** Another facet of adjustment to blindness is what I call the “independence-dependence conflict.” Consistently, persons who have recently become blind say to me, “I’m no longer independent,” or “I won’t be happy until I’m independent again.” Initially, after going blind, I, like my patients, was very preoccupied with my loss of independence.

Dependence is both a threat and a temptation. There is a conflict between the conscious rejection of dependence and the unconscious longing for it. This conflict is usually

accompanied by hostile impulses (Chodoff, 1959). The individual must be made aware of this.

### **Realistic Limitations**

As a part of the re-valuation process, the blind person must integrate into his life style his realistic limitations, and recognize the fact that sighted persons will always have to do certain things for him. This particular value change includes developing patience in situations where the individual must wait until someone can assist him. As he grows towards self-actualization, the individual learns that he is still independent although he must depend on others for certain needs. In doing this, I found it helpful to examine the concept of interdependence: we are all dependent and independent.

It was difficult for me and my family, as it is for my patients and their families, to decide what is healthy dependence and independence and what is neurotic. This difficulty arises because the independence-dependence conflict is dynamic. The individual is at first extremely dependent. Erratically, he acquires varying degrees of independence. For example, one day he might ask a family member to get him a pot of tea. A few weeks later he may get angry at the same family member for bringing him the same pot of tea: he can now pour tea for himself.

**STIGMA** The stigma attached to blindness stemming from attitudes of the public, which is largely ignorant regarding visual impairment, may make the individual feel different as he is adjusting to blindness. The term “stigma,” as it is used by Goffman (1963), is the act of categorizing and ascribing a stereotyped social identity. The identity which the individual can be proved to have is his “virtual” or “actual” identity. Stigma is based upon prejudice rather than reality. For example, when a stranger on the bus assumes he has the right to ask me, “How long have you been blind?” or takes it for granted that I need assistance off the bus, he is treating me with stigma. When an individual interviews me for a job and refuses to employ me because I am blind and have a dog guide, I am being treated with stigma and prejudice.

When loss of vision is new to the individual, the questions and assistance of the public are a novelty. As his independence returns, such stigmatized treatment becomes a disturbing and annoying invasion of privacy. I have attempted to develop a manner which does not make people feel rejected, but still maintains my privacy. Also, when blindness was new to me, I welcomed the public who treated me as the helpless and dependent being I was. However, as I outgrew my feelings of helplessness and dependency, I had to learn to cope with this stigmatized behavior. I am not as bothered by stigma and prejudice now that I am confident in handling it.

### **Social Situations**

Although I believe grieving was the most difficult aspect of my adjustment, learning to communicate in social gatherings took the longest, probably because social gatherings were not a daily event for me. I first had to learn to make others comfortable around me. Mentioning the word “blind” or “see,” or explaining briefly that I was totally blind from diabetes, and that my dog guide was from the Seeing Eye seemed effective. This also helped move the conversation on to different topics, which I wanted to do because discussing blindness constantly became fatiguing.



Learning to cope with the inability to recognize people's faces, being left by myself and having to seek out people with whom to speak, and the uncertainty of not seeing reactions to what I was saying on people's faces, were but some of the hurdles I had to surmount. I was often ambivalent about attending social gatherings because of the uncertainties created by lack of visual cues. In my work, I find that this is a common phenomenon with patients: social situations often result in embarrassment or anger. Just as in other areas of adjustment to blindness, confidence is developed through practice.

Does the individual ever accept blindness? Does he ever adjust to blindness? I do not believe that anyone ever accepts or adjusts to blindness. "Acceptance" implies compliance and approval. "Adjusted to" connotes something final and complete. However, life is a series of adjustments; adaptation to blindness is ongoing because the individual will continually meet unfamiliar situations. For persons who are self-actualizing, growth and change are vital. The individual with diabetes will be challenged with many medical adjustments throughout his life. If he meets the challenge of blindness, he will be equipped to confront other diabetic complications. If the individual wishes he could see or have a normal life expectancy, he is honest and self-actualizing so long as such feelings do not dominate his whole life.

**IDENTITY INTEGRATION** I prefer the concept of "identity integration" to "acceptance." Identity integration is a state of self-actualization in which the individual has learned to live with his disability, to realize his limitations, to involve himself in a world outside of himself, and to return to the fulfillment of life goals. The person who has achieved identity integration permits himself to express anger, depression, and frustration in constructive ways. Through grieving, re-valuation, resolution of the independence-dependence conflict, and the development of coping patterns for stigma and social communication, identity integration results. Although the pre-morbid per-

sonality of the individual persists, he is a different person because of the growth which has taken place in confronting blindness.

I often hear people say that the problem with a particular individual is that "he hasn't accepted his blindness" or "he hasn't adjusted to his blindness." I would prefer to hear the following: "The problem with this person is that he has not finished grieving." If a person who has become blind does not grieve, he will enter a reactive depression which precludes self-actualization.

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## Educators and the Law

One out of every six educators in the United States is likely to be sued in any 12-month period, according to Dr. Robert J. Simpson, director of the University of Miami's newly established Center for Policy and Law in Education. The center was created to inform educators of their legal rights and responsibilities. "It is becoming increasingly important for educators to be aware of these matters," Simpson noted. "Particularly since a recent Supreme Court decision (Wood v. Strickland) stated that an educator may be held personally liable for his action as an individual rather than as a protected official of an institution in instances where a student's constitutional rights may have been violated."

The center's emphasis is on preventive rather than procedural law. It translates the law for its clients through training, research, consultation, and dissemination of information about consistent policies and effective practices. The areas in which the center is primarily concerned include policy development, substantive and procedural due process, contract and tort liability, records and reports systems, school safety, adequacy of supervision, high risk activities, collec-

tive bargaining, and student rights. "The center staff believes," Simpson said, "that when rights and responsibilities of all concerned with an educational agency or institution are clearly stated and mutually understood, cooperation minimizes conflicts; reason replaces litigation."

## AAAS Endorses Copyright Restrictions

The American Association for the Advancement of Science (AAAS) has issued a policy statement in favor of pending copyright legislation, which places restrictions on "systematic" photocopying by libraries. While noting that widespread dissemination of scientific and technical information is imperative and that scientists must rely on photocopying, AAAS maintains that "unlimited photocopying could seriously affect the viability of many scientific publishing operations." The statement goes on to say that "the interest of both publishers and libraries need to be balanced . . . The provisions in legislation to revise the Copyright Act being considered by Congress are reasonable approaches toward that balance."



# Differences between Blind and Sighted Children on WISC Verbal Subtests

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**Abstract:** *Scores of blind and partially sighted children on verbal WISC scales were compared with those of sighted children in an attempt to discover whether the factor structures of the two groups corresponded. Score differences were caused mainly by the Comprehension and Digit Span subtests, blind and partially sighted children scoring lower than sighted children on the former, but higher on the latter. Intercorrelations among subtest scores were substantially stronger for blind children, with the exception of Digit Span. For sighted children, subtest scores were much more scattered, though scores on Information and Vocabulary, and Arithmetic and Digit Span, fell relatively close together.*

■ Studies involving the verbal section of the Wechsler Intelligence Scale for Children (WISC) administered to blind children have indicated that the subtest scores do not contribute to the verbal IQ in the same proportions as in the case of sighted children. A fairly consistent finding is that blind children score lower on the Comprehension Subtest and also often lower on Similarities (Tillman and Osborne, 1969). It appears that these lower scores are mainly due to a number of test items which are unsuited for the blind because of the subjects' experiential deficiencies (Tillman, 1967; Mommers and Smits, 1975). The underestimate caused by the two tests is alleviated by the inclusion of the Digit Span Subtest. Although it is known from factor analysis that this test is questionable as a measure of verbal intellectual ability, it can be noted that the test raises the verbal IQ by approximately as much as the Comprehension and Similarities subtests lower it.

The present study is designed to investigate whether the verbal intellectual performances of blind subjects in the Netherlands are comparable to those of sighted ones. More specifically, the question is: Does the factor structure of blind children from age seven through 13 correspond with that of their sighted peers? Do the results support the notion mentioned by Hopkins and McGuire (1966) and Tillman (1967), that the blind have a greater specificity in the organization of intellectual abilities sampled by these tests?

**SAMPLING PLAN** In 1970 the verbal part of the WISC was administered to all pupils of Dutch schools for the blind. In 1972 the test was repeated in order to get a more solid basis for the planned study of the relationship to reading ability (Mommers, 1974). Because of the movement of pupils to other schools and the arrival of new pupils in the intervening period, the group of 1972 consisted of about two-thirds of the original pupils.

For the present analysis pupils with an age range of seven through 13 years at the time of the test were selected. The 1970 and 1972 groups each consisted of 96 subjects. In 1974 it was attempted to form a group of an equal number of sighted children matched by IQ, age, and sex. The children in this group came from eight different schools ( $N = 96$ ). Later, the social class of the groups submitted was also compared. Table I gives the results of the comparison of these variables.

In the analysis of the blind groups, a distinction was made between the totally blind and the blind with residual vision, in order to make as accurate a comparison as possible. The criterion for this distinction was the score on a test for residual vision utilizing cards with configurations of dots (Mommers, 1974). The subjects who scored zero on this test were classified as totally blind, which meant they had no ability at all to discriminate forms.

The purpose of the analysis was to find out to what extent the test profiles of the submitted groups were similar, and whether dissimilarities depended only on differences in level of performance or also on differences in the underlying factor structure.

## Results

The results of the statistical analysis with respect to the subtest means are summarized in Tables 2, 3 and 4. It is evident from Table 2 that on four of the six subtests the means of the scaled scores for blind children were nearly the same as those for sighted children. Scaled scores according to the WISC manual were taken in order to

# WISC Verbal Subtests

**Table 1. Verbal Intelligence, Age, Sex, and Social Class of the three groups**

	BLIND 1970	BLIND 1972	SIGHTED 1974
<b>VERBAL IQ:</b>			
Mean	107.8	113.9	109.5
Standard Deviation	17.6	16.1	12.6
Range	72	76	66
<b>AGE (months):</b>			
Mean	121	120	121
Standard Deviation	21.9	22.5	22.0
Range	76	73	76
<b>SEX:</b>			
Boys	54	54	56
Girls	41	40	40
<b>SOCIAL CLASS:</b>			
Low	39	43	47
Middle	37	30	33
High	15	16	15

**Table 2. Mean and Standard Deviation of the Standard Scores of the WISC Subtests**

	1970						1972						1974	
	Blind (N=95)		Blind Without Res. Vision (N=45)		Blind With Res. Vision (N=50)		Blind (N=94)		Blind Without Res. Vision (N=47)		Blind With Res. Vision (N=47)		Sighted Children (N=96)	
	m	sd	m	sd	m	sd	m	sd	m	sd	m	sd	m	sd
Information	10.0	3.8	11.1	3.9	9.2	3.4	10.7	3.8	11.5	3.9	9.8	3.6	10.2	3.3
Comprehension	9.0	3.6	9.7	3.6	8.3	3.4	8.9	3.2	9.0	3.2	8.9	3.2	10.4	3.4
Arithmetic	12.2	3.6	13.0	3.4	11.4	3.6	13.0	3.5	13.1	3.6	12.7	3.4	13.3	2.5
Similarities	12.0	3.2	13.0	2.5	11.1	3.6	13.0	2.8	13.2	2.8	12.9	2.8	12.8	3.1
Vocabulary	12.6	3.8	14.0	3.6	11.4	3.6	13.5	3.9	13.6	4.1	13.3	3.6	12.3	3.4
Digit Span	10.9	3.4	11.7	3.6	10.4	3.1	11.9	3.4	12.2	3.6	11.5	3.2	10.0	2.9



# WISC Verbal Subtests

**Table 3. F-ratios, Correlations with the Discriminant Dimensions, and the Standard Regression Weights. Totally Blind and Blind Children with Residual Vision of 1970 and the Sighted Children of 1974.**

SUBTESTS	F-RATIOS	CORRELATIONS		STANDARD REGRESSION WEIGHTS	
		D <sub>1</sub>	D <sub>2</sub>	I	II
Information	3.79*	0.02	-0.66	-0.08	-0.12
Comprehension	5.90**	-0.44	-0.55	-0.58	0.00
Arithmetic	7.15**	-0.41	-0.71	-0.79	0.24
Similarities	5.68**	-0.21	-0.76	-0.03	-0.87
Vocabulary	7.22**	0.20	-0.87	0.81	-1.13
Digit Span	4.33*	0.41	-0.41	0.63	-0.12

\* =  $p < 0.05$

\*\* =  $p < 0.005$

**Table 4. F-ratios, Correlations with the Discriminant Dimensions and the Standard Regression Weights. Totally blind Children with Residual vision, 1972, and Sighted Children, 1974**

SUBTESTS	F-RATIOS	CORRELATIONS		STANDARD REGRESSION WEIGHTS	
		D <sub>1</sub>	D <sub>2</sub>	I	II
Information	3.23*	0.16	0.81	-0.05	1.21
Comprehension	4.62*	-0.42	0.16	-0.80	0.03
Arithmetic	0.65	-0.12	0.28	-0.42	0.02
Similarities	4.33*	0.10	0.20	0.20	-0.07
Vocabulary	2.59	-0.31	0.08	0.67	-0.74
Digit Span	8.92**	0.58	0.27	0.68	0.10

\* =  $p < 0.05$

\*\* =  $p < 0.005$

minimize age influences. In agreement with previous findings, it appears that blind children do indeed score lower on Comprehension and higher on Digit Span.

### Item-difficulty

As the analysis of item-difficulty pointed out, the differences in test means are attributable to a relatively small number of items. In the Comprehension Subtests, Items 5 and 9 are significantly more difficult for the blind children, whereas they clearly score better on Digit Span Items 5, 10, and especially, 11. The higher scores on the Digit Span subtests seem to support the presumption that in general blind subjects are able to concentrate better, because there is no interference from visual stimulation.

A few differences were also found in the other subtests. In some instances sighted children scored better, whereas on other items the blind children excelled. In summarizing, it should be noted that some items are less appropriate for blind subjects because they lack the benefit of visual information to help form the necessary conceptual relations. In the cases where blind children scored higher, it appears that references are often made to issues which are given greater attention in residential schools; for example, anniversaries and national holidays (e.g., Information: Items 17 and 25).

For both blind and sighted subjects, the item-difficulty sequence is fairly good in Arithmetic, Similarities and Digit Span but should be improved in the other subtests. Moreover, in most subtests it was found that the progression from easy to more-difficult items did not occur gradually enough. Since item-difficulty changes with age, one should remember that in the present analysis both the blind and sighted children are aged seven through 13 years.

An analysis of the scores of the totally blind children and those with residual vision revealed that the average scores of the latter group were somewhat lower in all tests. This result is probably influenced by the fact that intelligent children with a minimum of sight tend to remain at the school for partially sighted children, while less intelligent children tend to be sooner directed towards schools for the blind.

**DISCRIMINANT ANALYSIS** For a better understanding of the relative importance of the differences in subtest means, the test profiles of the groups were compared by means of discriminant analysis. In this method not only can test profiles of various groups be compared, but also the linear combination of subtest scores that discriminates most between groups can be determined.

Tables 3 and 4 give F ratios, correlations with the discriminant variables and the standard regression weights for totally blind children and children with residual vision of 1970 and for those of 1972. In considering the most important results, it should be noted that in neither comparison could homogeneity of the within-groups covariance matrices be established (Bartlett's test for homogeneity of group covariance).

### WISC Profiles Differ

As is evident from the F ratios in Tables 3 and 4, blind and sighted subjects do not have the same WISC profiles. The analysis also revealed that with respect to the discriminant functions, the variance between groups averages no more than 20 percent. Furthermore, it is remarkable that in the 1970-1974 comparison (Table 2) blind children stayed

significantly behind sighted children in Arithmetic. In the 1972 group this difference disappeared almost completely. The results in general suggest that blind children score on the average somewhat lower in Arithmetic than do sighted children. This finding is in agreement with the experience of teachers, who believe that as soon as problems arise which appeal to spatial, imaginative faculties, blind people have more difficulty than sighted people. Further on, the analysis points out that blind children in both groups score, on the average, somewhat higher on the Vocabulary subtest. The standard regression weights reveal that this test contributes relatively highly to the discriminant functions, although the test itself does not discriminate strongly between the groups (see especially the 1972 blind group). In this connection it should be noted that the test correlated rather closely with the other subtests.

As previously noted, in 1972, and even more obviously in 1970, totally blind children perform generally better on all subtests than do the children with residual vision. This is found most clearly in the Information Subtest.

### Group Centroids

Figure 1 shows the group centroids of the 1970-1974 comparison. In the comparison 1972-1974, more or less the same pattern was found (Figure 2). As is known from Tables 3 and 4, Comprehension and Digit Span show the strongest correlations with the first discriminant dimension. Since these tests differentiate blind and sighted subjects most clearly, we suggest that the first dimension discriminates the totally and partially blind children from the sighted ones. The second dimension is far more difficult to interpret. This dimension distinguishes between totally blind children and those with residual vision; the sighted children are in between. The correlations with the discriminant function do not provide a clear picture. From the subtest scores (Table 2), it appears that on the average, the totally blind subjects perform best, followed by the sighted children, while subjects with residual vision obtain the lowest scores (the Comprehension subtest excepted). Accordingly, it is suggested that the second dimension is related to verbal performance. The differences between the totally blind children and those with residual vision can probably be attributed to selection effects. As noted previously, intelligent blind subjects with residual vision still study at the school for partially sighted children.

### Reliability and Relations Between Subtests

As shown in Table 5, the reliabilities (alpha coefficients) for the blind groups are not different from those which are found for sighted children. The result is in agreement with Hopkins and McGuire's study (1966).

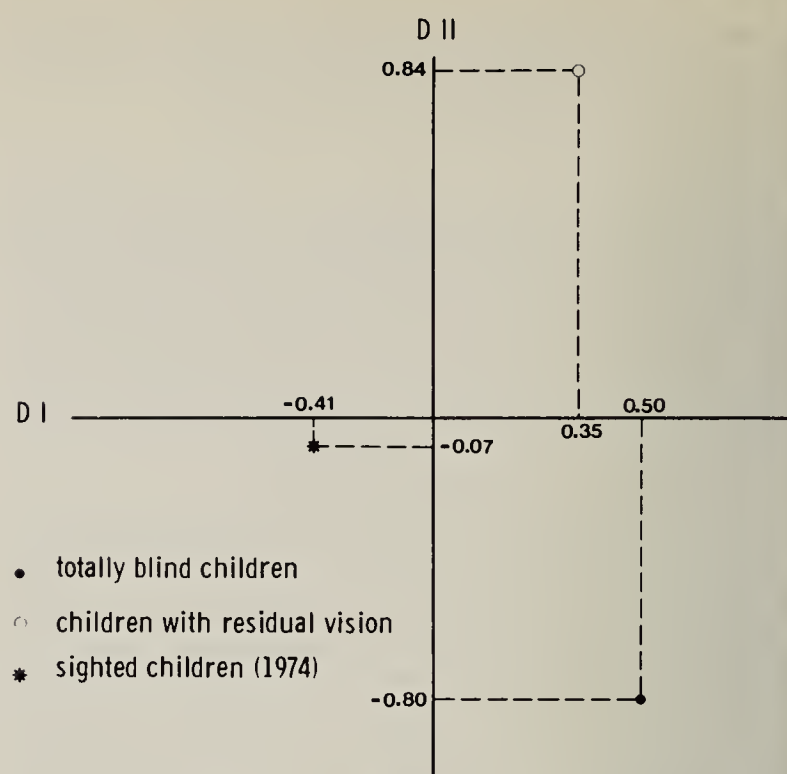
By comparing the obtained Pearson item-test correlations per subtest, it was found that the median and the number of items with  $P_{it} > .40$  was almost the same for both the blind and sighted groups.

Table 6 gives the intercorrelations among the subtests. The data indicate that the interrelationships are substantially stronger for blind children than for sighted ones. It is not likely that the somewhat larger standard deviations noted for the blind group are a sufficient explanation for this result. The stronger intercorrelations were not found in the studies of Hopkins and McGuire (1966) and Tillman (1967); in fact, they reported the opposite.

It is evident that these results do not indicate less of a general intelligence, or "g"-factor, in the performances of



# WISC Verbal Subtests



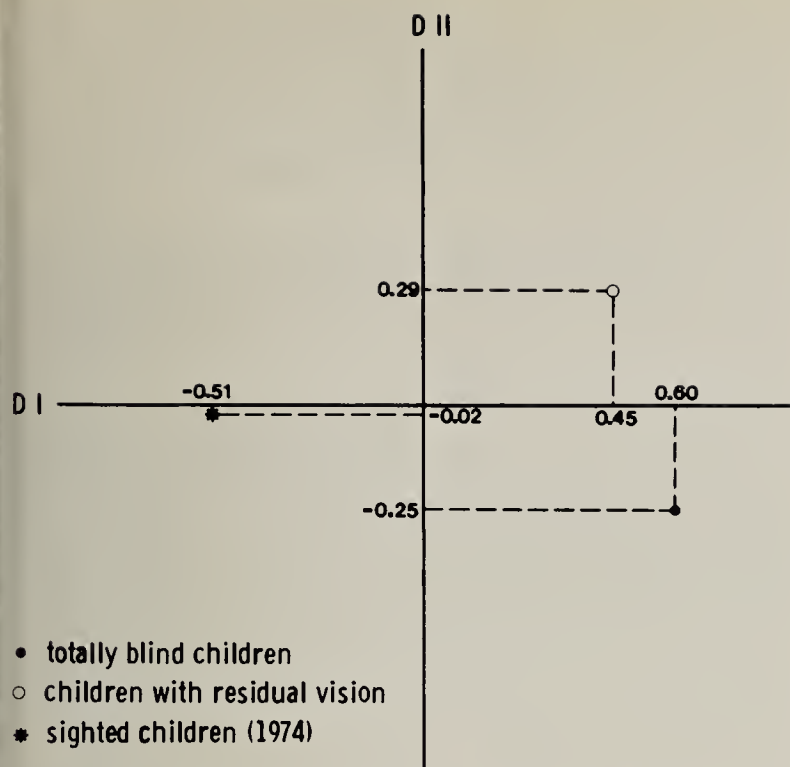
**Figure 1. Centroid of the 1970-group in discriminant space, relative to general centroid.**

**Table 5. Reliabilities (Alpha Coefficients) of the WISC Verbal Subtests for Blind and Sighted Children**

SUBTESTS	BLIND 1970 (N=95)	BLIND 1972 (N=94)	SIGHTED 1974 (N=96)
Information	.89	.92	.91
Comprehension	.74	.80	.80
Arithmetic	.82	.85	.79
Similarities	.81	.80	.78
Vocabulary	.92	.93	.91
Digit Span	.78	.81	.78

**Table 6. Pearson Correlations between the Standard Scores of the WISC Verbal Subtests and the Verbal IQ.**

		BLIND CHILDREN (1970 and 1972)							SIGHTED CHILDREN (1974)						
		1	2	3	4	5	6	7	1	2	3	4	5	6	7
1. Information	1970	—	.44	.67	.57	.67	.50	.82	—	.29	.30	.17	.61	.16	.69
	1972	—	.51	.55	.58	.67	.46	.79							
2. Comprehension	1970			.58	.48	.66	.20	.72			.33	.30	.42	.19	.67
	1972			.50	.51	.61	.25	.72							
3. Arithmetic	1970				.67	.74	.44	.87				.25	.32	.40	.63
	1972				.53	.54	.42	.73							
4. Similarities	1970					.68	.30	.78					.10	.18	.47
	1972					.56	.38	.76							
5. Vocabulary	1970						.42	.89						.21	.72
	1972						.39	.77							
6. Digit Span	1970							.61							.53
	1972							.64							
7. Verbal I Q	1970							—							—
	1972							—							—

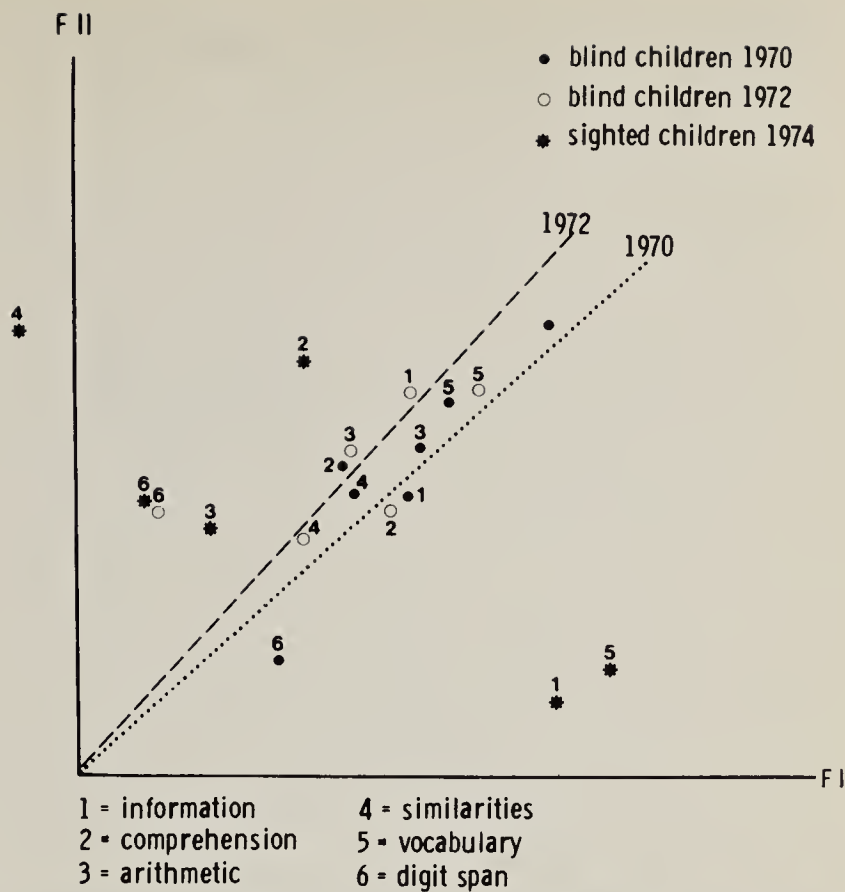


**Figure 2. Centroid of the 1972-group in discriminant space, relative to general centroid.**

blind children on the verbal WISC, as is hypothesized by Hopkins, McGuire and Tillman.

**FACTOR ANALYSIS** In comparing factor structures of three groups, factor analysis on covariance matrices is to be preferred to analysis on correlation matrices, because differences in variances of the variables submitted are taken into account. A two-factor solution was chosen for the present study. In order to investigate to what extent the factor pattern of the blind subjects corresponded to that of the sighted subjects, it was attempted to rotate the varimax solution for the blind to the varimax solution for sighted children. First a procrustes rotation was completed in which the varimax solution for the sighted subjects served as the criterion. It should be noted that in this procedure the two factors for the sighted subjects were fixed to be orthogonal, whereas no restriction was placed on the correlations between the two factors for the blind. Figure 3 gives a graphic representation of the results. It appears that for the blind, the first and second factors correlate very strongly: for the group of 1970,  $r = -.95$ , and for the 1972 group,  $r = -.85$ . The subtests for the blind therefore are scattered close to the (*estimated*) dotted lines.

In order to be more certain about the meaning of these results, the solution for the sighted subjects was rotated also to the fixed varimax solution for the blind of 1970 as well as to that of the blind of 1972. The results for the sighted subjects turned out to be approximately equivalent to those for the blind in the first rotation. Here too, the subtests scattered close to the estimated line. The solution for the sighted subjects and the blind of 1972, after procrustes



**Figure 3. Factor solution for the blind subjects (1970 and 1972) after oblique rotation to the sighted subjects (1974) as criterion.**

rotation to the fixed varimax solution for the blind of 1970, is shown in Figure 4. When the 1972 blind group was used as the criterion, more or less the same pattern was found.

The two figures make clear that the factor patterns of blind children do not correspond to those of the sighted children, whereas the patterns of the blind in both cases correspond fairly well.

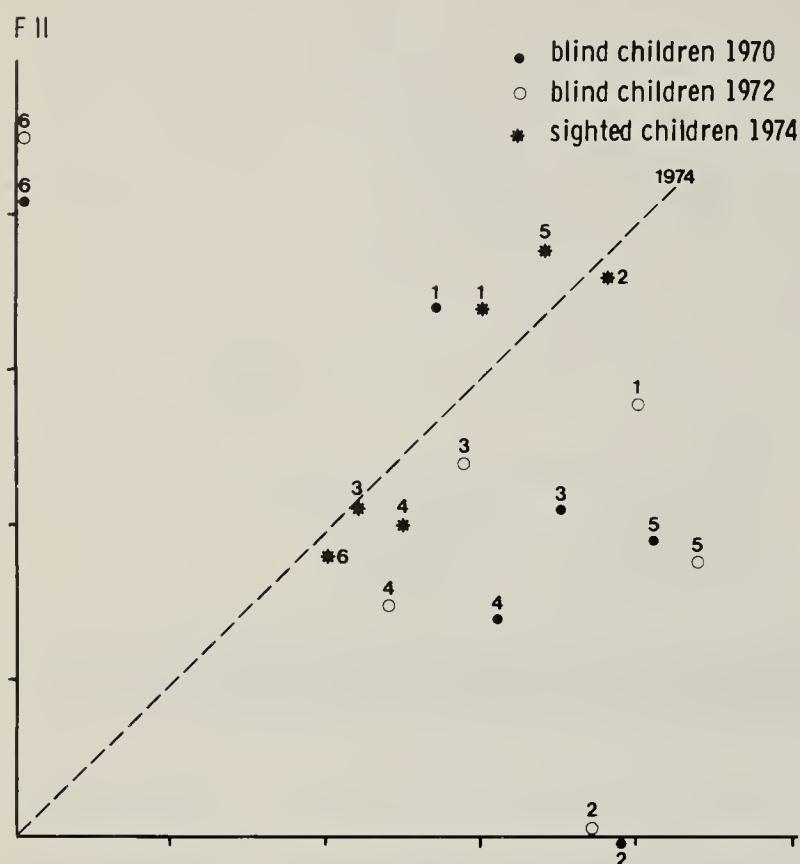
A second set of rotations was completed in which no correlation between the factors was allowed. The patterns resulting from these orthogonal rotations affirm the different factor structures for blind and sighted children. For blind subjects, the subtests Information, Arithmetic, Similarities, Vocabulary and, to a lesser extent, Comprehension are situated relatively close to each other; Digit Span is far removed from these subtests. For sighted subjects a different picture was found. Information and Vocabulary are situated near to each other on the one hand, as are Arithmetic and Digit Span on the other hand. In general it can be stated that the subtests are much more scattered for the sighted subjects than for the blind (see Figure 5).

**SUMMARY AND DISCUSSION** The purpose of the present study was to obtain more evidence about the discrepancies that exist between blind and sighted children on the Verbal WISC Scales. We were especially interested in whether differences were to be found in the organization of the abilities as measured by the various subtests.

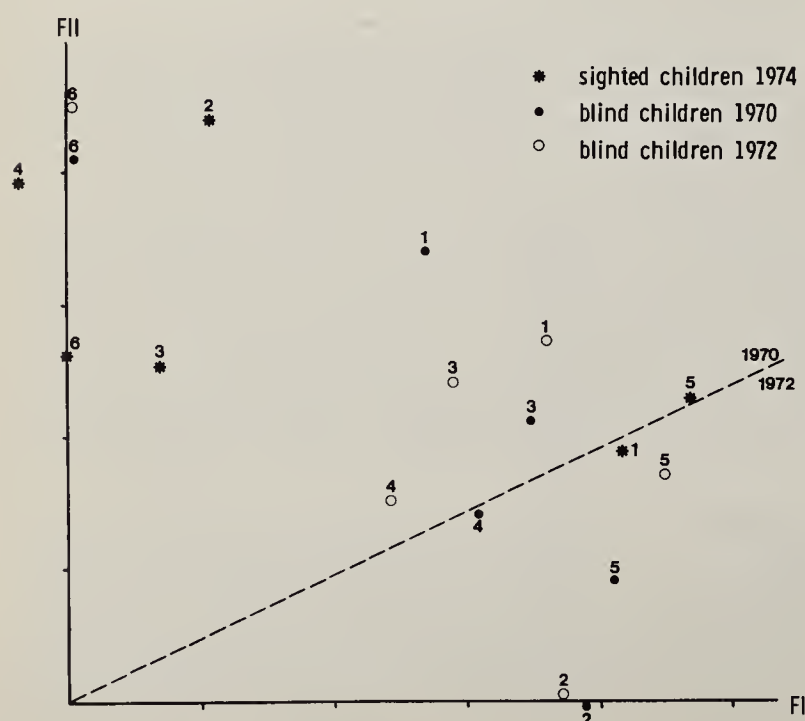
In agreement with previous research, it appeared that differences in verbal WISC scores are caused mainly by the



# WISC Verbal Subtests



**Figure 4. Factor solution for sighted (1974) and blind (1972) subjects after oblique rotation to the blind of 1970 as criterion.**



**Figure 5. Factor solution for sighted (1974) and blind (1972) subjects after orthogonal rotation to the blind of 1970 as criterion.**

Comprehension and Digit Span Subtests. In our study, slight differences were also found with respect to Arithmetic and Vocabulary. Although the test profiles of blind and sighted subjects differ significantly, it is impossible to classify subjects in a blind or a sighted group on the basis of their score patterns.

Concerning the structure of the verbal intellectual abilities for blind children, higher intercorrelations were found among the subtests. A factor analysis was completed on the covariance matrices. In the procrustes and orthogonal rotation of the two-factorial solutions (normal varimax criterion) in which the solution for the blind as well as for the sighted subjects was fixed orthogonally, it turned out that the factor patterns of the blind did not correspond with those of the sighted subjects. The subtests scattered much more for sighted subjects than for blind children. The results suggest a stronger (more homogeneous) relationship among the subtests for the blind. It should be noted that this is contrary to previous findings (Hopkins, McGuire and Tillman). The lesser specificity of the subtests for the blind can probably be ascribed to the lack of visual experience and therefore the greater dependence on verbal information. Consequently, it is reasonable that the subtests are situated more closely to each other in the factor patterns (Digit Span excepted).

Differences in verbal development between blind and sighted subjects studied by means of the verbal WISC can provide only broad information. For a better understanding, more differentiated measures are required, such as the Illinois Test for Psycholinguistic Abilities (ITPA). These measures should be used in research on homogeneous age groups of a reasonable size.

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# Rehabilitation Teaching: A Field Approach To Assessment of Client Needs

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■ A field approach to rehabilitation teaching differs from that in an institutional setting in many ways. Some of the more obvious differences are: a) lack of environmental control, b) shock phase, c) familiarization with local, state, and national resources, and d) frequency of teaching visits. The field rehabilitation teacher has little or no control over the environment or some of the events that occur during the interview or teaching. For example, the phone might ring or the children in the home might have any of a variety of accidents. In the office or training center the teacher can ask that the switchboard not put through calls, the temperature may be regulated for the comfort of the student and the instructor, and there are likely to be no quarrelsome children about. Also, learning may be interfered with by the presence and observation of acquaintances and family. Unfamiliar associates, such as those at a training facility, might tend to separate learning capacities from their emotional associations.

In many instances the field rehabilitation teacher is the first professional worker for the blind to come in contact with the newly blinded student. Often the student is still in a state of disbelief, shock, despair, and utter hopelessness. Perhaps he has never heard of the availability of instructional help for newly blinded adults. At this stage he may be convinced that nothing can be done to improve his circumstances. If, however, the student is attending a training center, this act may imply a belief that there is hope, and that much can be done to improve his living situation.

When possible, many rehabilitation teachers encourage newly blinded students to attend training centers. Since this is not always possible, it is vital that a field rehabilitation teacher have some preparation in effective interviewing techniques and basic counseling so he can help the student explore and express his feelings about blindness and understand its implications for him. To truly help the student live with blindness, he should be adept at 1) listening, 2) helping the client to explore what blindness means to him and what he can do about it, 3) providing immediately useful information, 4) giving support and encouragement, 5) projecting himself as a professional who can be trusted and who will make every effort to help the student understand the implications of blindness.

**FAMILIARIZATION WITH RESOURCES** A familiarity with local resources can greatly aid the teacher. There is a value in having working relationships with ministers, librarians, volunteers, mental health workers, teachers, and others. State and national resources are also useful in helping the student carry out a rehabilitation teaching program.

In many locations a field rehabilitation teacher is responsible for a rather large geographical area. Because of this and other reasons such as caseload size and other responsibilities, he may be unable to provide instructions to some students more than two or three times per month. He should have skills in motivating his student and should make the best use of local resources. In a training center the student may have daily instructions and hourly contact with teachers and other professional staff.

The teacher in a field setting must continually adapt to varying situations. Insight gained and knowledge acquired while coping with these experiences, as well as encountering the student in his life setting, could be helpful. A total overview of the student's life situation may aid in teaching problem solving skills uniquely suited to the environmental situation.

**Abstract:** *This article examines the basic differences between training center and field approaches to rehabilitation teaching of newly blinded adults. Also presented is a guideline which can be used by the field rehabilitation teacher to assess the emotional and rehabilitative needs of his client.*

**Note:** *This article is based on a paper delivered at the biennial meeting of the American Association of Workers for the Blind, Atlanta, July 20-23, 1975.*



“... knowledge of the student's activities prior to blindness will give direction and emphasis to the planning of his rehabilitation program.”

The initial contact or contacts are designed to obtain information which will assist the teacher (with the client's participation) in developing a meaningful rehabilitation teaching program. An approach to interviewing should have system, purpose, and direction—not just casual groping. In developing a rehabilitation teaching plan one must identify the needs and problems as seen by the student as well as the teacher. The most helpful interviewing techniques seem to be those which result in the student playing a major role in designing, developing, and carrying out his own rehabilitation teaching program. The following are categories of information and enabling questions which would be useful in developing a plan of services. One might not ask all of these questions and, certainly, not necessarily in the order listed here. In some instances a comment would elicit the information more effectively than a question. This list is not meant to be used as a questionnaire, but rather as a guide for the teacher in evaluating his own interviewing techniques.

**PERSONAL DATA AND ATTITUDES** It may be important to know the extent of the student's participation in the referral. This information may give some indication as to his motivation and expectations of services. If the referral initiates from someone other than the student, it may be helpful to know his relationship to that source. Enabling questions:

1. How did you first learn of rehabilitation teaching services?
2. What, specifically, have you heard about rehabilitation teaching?
3. Was it your idea to seek rehabilitation teaching services?

### Eye Condition

It is important to know the cause of visual loss, amount of vision, use made of residual vision, onset of visual loss, source of medical treatment, and student's interpretation of prognosis. This information is relevant in evaluating the student's needs and subsequently developing a rehabilitation teaching program and/or making use of a variety of possible resources. Enabling questions:

1. What is the cause of visual loss?
2. How long have you had a serious visual problem?
3. Have you seen an ophthalmologist? What does he say about your visual loss?
4. Are you now receiving medication for your eyes?
5. Can you see me sitting here?
6. Are you able to count my fingers (at four feet, two feet, one foot)?
7. Are you able to read large print with or without magnification?
8. Are you able to see the furniture in the room?
9. Do you see better to the side or straight ahead? In bright or dimly lighted areas?
10. Have you been evaluated for low vision aids?

11. Do you feel that your visual problem is stable, likely to worsen, or improve?

### Health

Rehabilitation teachers should understand to what extent the student's health limits or restricts his everyday activities or his ability to accept or use rehabilitation services. Other health problems might indicate the need for referral to other agencies and/or medical facilities. Some attention should be given to the everyday practical use of the sense of hearing and the sense of touch. Loss or problems in these areas are vital and should be noted and explored. Enabling questions:

1. Other than your visual loss, do you have health problems? If so, what, and for how long? What treatment are you receiving for your condition?
2. Do you know the prognosis for your condition?
3. Do you have a loss of feeling in the hands or feet? Do you tire easily?
4. Has your doctor imposed limitations on your activities?
5. Is your hearing normal? If not, in which ear do you hear better?
6. Are you having any difficulty hearing me speak?

**STUDENT'S BACKGROUND** It is helpful to know who and what the student was prior to his visual loss. Any previous experience or contact with blindness should be noted for it may have had some influence on his attitude toward his own loss of vision. Factors in the student's background may be valuable in gaining understanding for the purpose of developing a rehabilitation teaching plan. Such information as cultural environment, upbringing, educational history, significant childhood events, kinds of employment, and other factors could prove useful. Enabling questions:

1. Have you ever known any blind people or seen any blind person? What were your feelings about that experience?
2. Did you ever give any thought to the possibility that you might lose your vision?
3. What did you previously think was the worst thing about being blind and what do you find now bothers you the most?
4. Were you reared in this area? If not, where?
5. Do you have relatives in this area?
6. How long did you attend school? (Often a casual comment, such as, “back in those days a person would have done well to complete the fifth grade,” will provide the information without embarrassing the student concerning lack of formal education.)
7. What kind of work have you done?
8. What did you do for recreation? How has this changed?

### Motivation

It would be useful to the teacher to understand whether the student perceived his life to have been controlled by outside forces and circumstances or by his own efforts (external or internal). The issue of being controlled by external or internal forces involves a basic life style. The teacher should listen for comments such as, “Life has dealt me a dirty blow,” or “What did I do to deserve this?” These kinds of comments may be indications of a philosophy which says in



essence, "I am controlled by outside forces and I have very little or nothing to do with shaping events. If so, I do not assume any responsibility for myself." The method used in a rehabilitation program may rely heavily upon the student's internal or external motivations. Enabling questions:

1. How do you think you got where you are in life?
2. Do you usually do what you want or what other people want?
3. Do you believe most things happen to you or do you make them happen?
4. Prior to your visual loss, did you ever want to change something in your life or accomplish something difficult? Were you able to do it?
5. Were you willing to take chances to accomplish this?

### Family Relationships

It is often helpful to know what the client's role in the family was prior to his blindness and how the role has changed since his visual loss. Since rehabilitation teaching does include work with the family it is important to know the family's attitude about blindness and their expectations of the client as a blind person. Has blindness created problems in the marital relationship that did not exist prior to the loss of vision? Often the teacher can gather much useful information concerning family relationships through observation during the interview. Enabling questions:

1. How does your spouse/parents/children feel about your visual loss?
2. Do they want to help you too much or not enough? How do you feel about this?
3. Do you find that in some instances the loss of visual communication creates stress and anxiety which otherwise did not exist? How do you feel this loss has affected your relationship with various members of your family?

**ASSESSING NEEDS FOR ADAPTIVE SKILLS** In evaluating the need for braille, the rehabilitation teacher might do well to determine to what extent (or for what particular purposes) the student used print prior to his visual loss. An explanation of how braille can be used as a substitute would assist the student in assessing his need for the skill. For example, the teacher might suggest record keeping, lists of phone numbers, or labelling of canned goods in braille. Enabling questions:

1. In what ways did you use print when you could see?
2. Would you like to learn another method of reading and writing so that you could continue some of these everyday activities?
3. What are your thoughts and feelings about learning braille as a substitute for print?

### Typing and Handwriting

It is important for the teacher to understand the student's former skills in these areas and the uses made of these skills. It might be helpful to suggest that with some effort he could learn adaptive techniques making it possible to continue corresponding and signing his name. Enabling questions:

1. When you had vision did you ever correspond in handwriting or typing?
2. Do you have difficulty in signing your name now?
3. How do you correspond with relatives and friends?
4. Would you like to learn some skills that would make it possible for you to perform these tasks independently?

**HOMEMAKING AND HOME REPAIRS** In these, as in the other skill areas, knowledge of the student's activities prior to blindness will give direction and emphasis to the planning of his rehabilitation program. Occasionally visual loss causes a degree of shifting of role responsibilities. In such cases, the learning of basic, as well as adaptive, skills in home management could be a useful contribution. Enabling questions:

1. When you had vision, did you prepare meals, clean up, sew, iron, etc.?
2. As a visually impaired person do you have problems in some of these everyday activities, such as pouring liquids, cooking, threading a needle?
3. Would you like to learn some techniques that would make it possible to continue performing tasks in the homemaking areas?
4. Did you perform simple home repairs when you had vision?
5. When the need arises, how do you perform these tasks as a visually impaired person?
6. Would you like to learn some techniques that would make it possible for you to perform home repair tasks?

**TRAVEL AND ORIENTATION** In evaluating the student's needs in orientation and travel the teacher should be aware of the student's amount of vision and use made of it. (See discussion and questions on eye condition.) A thorough discussion of possible orientation problems in the home and nearby area is helpful. In considering the client's need for extensive instruction in travel other factors, such as mode of transportation prior to loss of vision and how loss of vision has altered that method, would be useful. Enabling Questions:

1. Do you have difficulty moving about in your home?
2. Do you ever become lost or disoriented?
3. Are you able to go out of doors to get the mail, carry out the trash, etc.?
4. Where did you like to go or have to go as a sighted person? How did you get there?
5. How do you go places now?
6. Would you like to learn some adaptive techniques that would make it possible for you to move about more independently in the home, neighborhood, or community?

### Therapeutic Crafts

Therapeutic crafts are a necessary part of a rehabilitation teaching program to improve the student's tactile ability to gather and interpret information. Skills acquired in this manner may be transferable to other situations. Careful observation throughout the interview could provide the teacher with clues to the student's ability in this area. The teacher might hand the student everyday objects such as an ashtray, pencil, keys, and/or coins and ask him to identify the object. It is important to note how the student reaches for and takes the object as well as the techniques in examining them. Enabling questions:

1. As a sighted person in what ways did you use your hands in everyday activities and at work?
2. Did you find it often necessary to use your vision in most of these activities?
3. Do you have difficulty in gathering useful information through the sense of touch without the use of your vision?



**CONCLUSION** For the rehabilitation teacher working primarily in the field, it may be useful to have this type of guideline for effectively interviewing and planning an individualized teaching program. A teacher's flexible use of these suggestions may help the student gain an understanding of himself. The more self-understanding the student possesses, the better he is able to participate in the planning of his rehabilitation program.

We are particularly indebted for their assistance, to Michael Garrett, rehabilitation teacher, State of Illinois, Community Services for the Visually Handicapped; Alvin Roberts, supervisor,

State of Illinois, Community Services for the Visually Handicapped; and Velma Becker, supervisor, State of Illinois, Community Services for the Visually Handicapped.

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## Historic Document in Braille

A braille transcription of the Declaration of Independence will be on display in the White House throughout the bicentennial year. The project was conceived and carried out

by Charlotte Goldblatt, Stamford, Connecticut, who is a volunteer braille instructor for the Library of Congress. Measuring 36 by 40 inches, the work is done on parchment paper, with graphic representations of the Liberty Bell and the American Eagle. Included on the document are exact replicas of all the signatures on the original Declaration.



# Devereux Scales as Behavioral Measures of Visually Impaired Residential Students

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■ Many residential schools for the visually handicapped are involved in a reorganization process designed to provide educational services for the multiply-handicapped visually impaired child. Program reorganization and implementation require continuous feedback for evaluation and assessment as integral components in total programming for these children (Bateman, 1967).

In the psychoeducational assessment of visually impaired children, standardized tests and measures related to learning potential and achievement of sighted populations have frequently been adapted for visually handicapped individuals, differential allowances being made for the resulting test scores.

The present study sought to determine if the Devereux behavior scales would be sensitive and reliable instruments in a behavioral survey of a population of visually impaired children. It was also the intent of the study to delineate the inappropriate behaviors identified by the Devereux so that continuous evaluation procedures, behavioral management, and/or curriculum adaptations could be developed.

**EVALUATION INSTRUMENTS** Three Devereux behavior rating scales were used: 1) the Devereux Child Behavior Rating Scale (DCB) (Spivack & Spotts, 1966), 2) the Devereux Adolescent Behavior Rating Scale (DAB) (Spivack, Haimes, & Spotts, 1967), and 3) the Devereux Elementary School Behavior Rating Scale (DESB) (Spivack & Swift, 1967).

The Devereux Child Behavior Rating Scale and the Devereux Adolescent Behavior Rating Scale have:

“... as many uses as there are reasons for knowing the behavior symptomatology of a child. Among other uses, the Scale may be employed: a) to assess behavioral change as a function of any treatment process or environmental change; b) as a refinement of current clinical diagnostic labels; c) as part of intake procedures, wherein information from others . . . is required; d) as an aid in group placement of children in residential treatment; e) as a research tool when a reliable behavior criterion is required” (Spivack & Spotts, 1966, p. 3).

The DCB Scale was designed to be used by parents, houseparents, child care workers, nurses, or others in a parent role. The scale contained 75 statements which had been grouped into 17 behavior factors. The first 10 factors were labeled “behavior competence” factors; the remaining seven factors were labeled “behavior control” problems. It was suggested that this scale be used to evaluate children six and seven years of age or atypical children with latency ages of eight to 12.

The DAB Scale was designed to be used with children of ages 13-18 by parents, houseparents, nurses, hospital aides, and “in certain instances,” teachers. The scale consisted of 12 behavior factors and three behavior clusters. There were 58 statements which made up the 12 behavioral factors; 15 items were grouped into the three behavioral clusters.

The Devereux Elementary School Behavior Rating Scale:

“... has as many uses as there are reasons for knowing the problem behaviors that interfere with learning in the first six grades of elementary school. Among other uses, the scale may be used: a) as a means of identifying and measuring those classroom behaviors that may be interfering with achievement, b) as one element in a total educational ‘diagnosis’ of a child with a learning problem, c) as an ongoing school record of classroom behavioral adjustment, d) to measure change in behavior through time as a function of any remedial program, e) as a standard form of communication from the teacher to school administrators or other professionals who may be involved with a child, f) as an aid in

**Abstract:** *This study examines how well Devereux behavior rating scales perform as sensitive and reliable instruments for delineating inappropriate behavior among visually impaired children at a residential school. Three Devereux scales were administered: the Child Behavior Rating Scale; the Adolescent Behavior Rating Scale; and the Elementary School Behavior Rating Scale. Students were rated on the scales, from which obviously inappropriate items had been deleted by houseparents and teachers. One week later, a random sample of students was selected for re-evaluation, as a measure of test-retest reliability. The results suggest that the scales could be viable evaluation instruments, though the Child Behavior Rating Scale showed unacceptable test-retest reliability.*



# Devereux Scales

**Table 1. Devereux Child Behavior Rating Scale. Visually Handicapped Children Rated by Houseparents as Having Behavior Problems**

BEHAVIOR FACTOR	ELEMENTARY STUDENTS (N=30)		SECONDARY STUDENTS (N=41)		TOTAL (N=71)	
	Number	Percent	Number	Percent	Number	Percent
1. Distractability	5	17%	2	5%	7	10%
2. Poor self care	5	17	0	0	5	7
*3. Pathological use of senses	—	—	—	—	—	—
*4. Emotional detachment	—	—	—	—	—	—
5. Social isolation	3	10	4	10	7	10
6. Poor coordination and body tonus	9	30	3	7	12	17
7. Incontinence	3	10	0	0	3	4
8. Messiness, sloppiness	3	10	2	5	5	7
9. Inadequate need for independence	6	20	13	32	19	27
10. Unresponsiveness to stimulation	2	7	1	2	3	4
11. Proneness to emotional upset	3	10	3	7	6	8
*12. Need for adult contact	—	—	—	—	—	—
13. Anxious-fearful ideation	0	0	4	10	4	6
14. "Impulse" ideation	2	7	1	2	3	4
15. Inability to delay	0	0	1	2	1	1
16. Social isolation	1	3	0	0	1	1
17. Unethical behavior	2	7	1	2	3	4

\*Deleted from the ratings since this factor contains statements which could penalize visually handicapped children.

group placement of children in classes, and g) as a research device for those who wish a reliable measure of behaviors that appear in the classroom setting and are related to learning" (Spivack & Swift, 1967, p. 3).

The DESB Scale was designed to be used by teachers to evaluate elementary school children of ages six to 12. There were 11 behavioral factors derived from 44 component statements.

The basic directions for rating the students were the same for all three scales. The ratings ranged from a numerical value of (5) "very frequently" to (1) "never"; or (8)/(7) "extremely" to (1) "not at all." A profile sheet was separated from the rating form. The rater's evaluation was tallied on this sheet by the authors. The profile sheet indicated the behavior factors, the factor item raw scores, the total raw score for each factor, and a line graph analysis of the raw scores expressed in standard score units.

Seventy-seven visually impaired students from the Kansas State School for the Visually Handicapped were evaluated by teachers. Seventy-one of these subjects were also evaluated by their houseparents. Forty-one subjects were male and 36 were female. Their ages ranged from six to 21 years. There were 30 elementary students (14 males and 16 females), and 47 secondary students (27 males and 20 females). Of the total population, 46 students used braille and 31 students used print as their mode of reading.

**STUDY DESIGN** Houseparents and teachers were asked to complete the appropriate rating scales for their students. To obtain a test-retest reliability, one week after all ratings had been returned, the names of 20 subjects were randomly selected to be re-evaluated by the same houseparents and teachers. Scale forms and instructions were distributed as in the first evaluation. During the initial rating, the houseparents and teachers did not know that they would be asked to evaluate the subjects for a second time.

The raters, both houseparents and teachers, were given Devereux rating scales with the profile sheets removed. They were instructed to read the rating scale directions, respond to all statements in the scale, and to return the scales to the investigators within one week.

Seventy-one subjects had a minimum of two houseparents concerned directly with their after-school care and supervision. Each subject was rated by two houseparents using the DCB scale. The 47 secondary students were also evaluated by four or five of their teachers, who used the DAB scale. Each of the elementary students was rated by four of their teachers, who used the DESB scale.

**RESULTS** In the analysis of ratings by houseparents on the DCB scale, Factor 3 (pathological use of senses), Factor 4 (emotional detachment), and Factor 12 (need for adult contact) were not included. These three factors contained statements that would have penalized visually impaired subjects. For example, Factor 3 contained the statement, "Cover or shut his eyes or turn away in order not to see something?" Factor 4 had the statement, "Have a blank stare or faraway look in his eyes?"

The authors of this study determined that a subject had a "problem" factor if the subject's rating by two houseparents was more than 84 percent of the "normal" score for the DCB. Table 1 presents the number of subjects rated as having a problem associated with the behavioral factors. Of the total population evaluated, 19 subjects, or 27 percent, were rated as having problems related to "inadequate need

for independence." The secondary students were rated as having this problem more often than were the elementary students. Seventeen percent of the population were evaluated as having "poor coordination and body tonus," with the elementary students rated as having this problem more frequently than were the secondary students. Ten percent of the total population were identified as having problems related to Factors 1 and 5 (distractibility and social isolation).

Factors 8, 9, and 10 were not included in the analysis of the ratings made by teachers using the DAB scale, as these factors contained statements that would have caused a negative rating because of the subjects' visual impairment. Factor 8 contained the question, "How often does he have a fixed facial expression that lacks feeling?"; Factor 9 included the question, "To what degree is he afraid of getting hurt in physical activities (e.g., climbing, rough-housing, sports, etc.)?"; and Factor 10 asked, "How often does he have a blank stare or a faraway look in his eyes?"

If three teachers rated a behavior in the problem range as indicated by the Devereux Scale, then the subject was identified as having a behavior problem. (The following example will illustrate this: For a subject to be credited as having a problem related to Factor 7, three teachers would each have to give a numerical score of 12 or more.) Table 2 presents the number of secondary subjects evaluated as having a problem in the behavior factor areas. Those factors most frequently rated as problems were Factor 4 (heterosexual interest), Factor 5 (hyperactive expansive), Factor 7 (needs approval dependency), Factor 11 (bizarre speech and cognition), and Cluster 1 (inability to delay).

In the analysis of the ratings made by teachers using the DESB scale, Factor 6 was not included, as it was not applicable to a visually impaired child. Two teachers had to agree in their ratings of a given student as having a behavior problem. Table 3 presents the number of elementary students rated on the scale as having behavior factor problems. All factors (excluding Factor 6) were associated with 10 percent or more of the elementary student subject population. Comprehension, irrelevant-responsiveness, and impatience were most frequently identified as problems.

**GROUP SUMMARY** Table 4 presents the total number of factor problems (combining two of the three behavior scales) for each student. Thirty-six percent of the total population evaluated had one or no behavior factor problems. Sixty-four percent had two or more behavior factor problems.

The Spearman *rho* rank-difference correlation (Guilford, 1965) was used to examine the test-retest reliability of this study. Reliability data are presented in Tables 5, 6, and 7. The reliabilities obtained by Spivack and his associates are also presented. Those factors deleted from the evaluation of the subjects were also deleted in the test-retest reliability analysis. Guilford (1965) has stated that acceptable reliability coefficients usually fall within the range of .70 to .98. With this definition, eight of the 14 factors evaluated on the DCB scale were considered reliable. All factors evaluated on the DAB scale and all but one factor evaluated on the DESB scale met reliability criteria.

## Discussion

The Devereux scales were constructed to evaluate a series of behaviors by assigning a numerical value to each statement and then totaling these values. There was a possible source of error in this study by the very nature of



# Devereux Scales

**Table 2. Devereux Adolescent Behavior Rating Scale. Secondary School Visually Handicapped Children Rated by Teachers as Having Behavior Problems**

BEHAVIOR FACTOR	SECONDARY STUDENTS (N=47)	
	Number	Percent
1. Unethical	1	2%
2. Defiant-resistive	2	4
3. Domineering-sadistic	2	4
4. Heterosexual interest	14	30
5. Hyperactive expansive	10	21
6. Poor emotional control	3	6
7. Needs approval- dependency	6	13
* 8. Emotional distance	—	—
* 9. Physical inferiority- timidity	—	—
*10. Schizoid withdrawal	—	—
11. Bizarre speech and cognitions	5	11
12. Bizarre action	2	4
RATIONAL CLUSTERS		
1. Inability to delay	8	17
2. Paranoid thinking	0	0
3. Anxious self-blame	4	9

\*Deleted from the ratings since this factor contains statements which could penalize visually handicapped children.

**Table 3. Devereux Elementary School Behavior Rating Scale. Elementary School Visually Handicapped Children Rated by Teachers as Having Behavior Problems**

BEHAVIOR FACTOR	ELEMENTARY STUDENTS (N=30)	
	Number	Percent
1. Classroom disturbance	6	20%
2. Impatience	9	30
3. Disrespect-defiance	5	17
4. External blame	5	17
5. Achievement anxiety	4	13
* 6. External reliance	—	—
7. Comprehension	10	33
8. Inattentive-withdrawn	4	13
9. Irrelevant-responsiveness	10	33
10. Creative initiative	3	10
11. Need closeness to teacher	6	20

\*Deleted from the ratings since this factor contains statements which could penalize visually handicapped children.

**Table 4. Summary. Visually Handicapped Children Rated with Devereux Scales as Having Behavior Problems**

NUMBER OF PROBLEMS INDICATED BY SCALES	ALL STUDENTS (N=77)	
	Number	Percent
0	14	18%
1	14	18
2	17	22
3-6	23	30
6 or More	9	12

the rating scale procedure. If the individual responding to the rating scale did not understand the statements or item; if the rater regarded them as irrelevant to the ratings; or if the rater did not feel like cooperating with the persons asking him to complete the scale, the rater might a) respond to the scale the same way for all of the subjects, b) give only favorable descriptions, c) give inconsistent responses, or d) make an overall judgment regardless of the actual content of the statement (Campbell, Dunnette, Lawler, & Weick, 1970).

The Devereux scales were not designed for or standardized with visually impaired children. Lowenfeld (1971) cited Sommers (1944) and Baker (1953) in emphasizing that one should question the validity of personality inventories not created specifically for blind persons. Spivack and his associates (1966, 1967) stated that their scales were not for the purpose of measuring personality traits, but to provide a profile of behavioral problems that might require intervention. While it was necessary to delete some of the factors because of biased statements in regard to the visual status of an individual, the authors of this study believed that such a profile would prove beneficial to individuals who plan educational services for visually handicapped children.

**TEST-RETEST RELIABILITY** The reliability results were particularly encouraging for the use of the DAB scale and the DESB scale with visually impaired children. The overall test-retest reliability for the DCB scale was not considered acceptable. The authors suggest that the poor reliability may be related to a) the houseparents not being trained in response procedures, b) the houseparents not receiving any explanation of terminology used in the behavioral statements, and c) the fact that this scale was designed for ages of six through seven, but was used in this study with ages six through 21.

Individuals who are associated with the education of the visually impaired are aware of the subjective, critical, and generalized statements that residential schools foster dependence and do not provide sufficient opportunities for heterosexual and general social development. Whether this survey was affected by the organizational nature of the school or by the general characteristics of students educated in a residential setting was not the concern of this study. However, in the results from the DAB, Factor 4 (heterosexual interest) did suggest to the administration of the Kansas State School for the Visually Handicapped that heterosexual social opportunities needed to be strengthened in the total programming for their students. The results related to Factor 9 (inadequate need for independence) of the DCB, Factor 7 (needs approval dependency) of the DAB, and Factor 11 (needs closeness to teacher) of the DESB provided feedback indicating the need for a re-evaluation of the curriculum input for techniques of daily living.

Factor 9 (irrelevant-responsiveness) and Factor 7 (comprehension) were the two most frequently rated problem factors on the DESB. The ratings for Factor 9 suggested that the students who appeared unaware of classroom activities and preoccupied with their own thoughts may have been manifesting adjustment problems. Factor 7 may be related to learning problems and not necessarily associated with a limited intellectual ability. All of the factors on the DESB scale presented dimensions of classroom behavior that could be relevant to educational achievement and adjustment.

**Table 5. Devereux Child Behavior Scale. Test-Retest Reliabilities. Comparison of the Present Study with the Devereux Study**

BEHAVIOR FACTOR	SPEARMAN RHO RANK- DIFFERENCE CORRELATION*	
	Present Study (N=26)	Devereux Study (N=80)
1	.67	.80
2	.88	.99
5	.65	.94
6	.54	.94
7	.89	.95
8	.71	.95
9	.66	.91
10	.64	.91
11	.78	.87
13	.54	.88
14	.83	.92
15	.83	.84
16	.88	.91
17	.71	.94

\*Acceptable reliability coefficients fall within the range .70-.98

**Table 6. Devereux Adolescent Behavior Rating Scale. Test-Retest Reliabilities. Comparison of the Present Study with the Devereux Study**

BEHAVIOR FACTOR	SPEARMAN RHO RANK- DIFFERENCE CORRELATION*	
	Present Study (N=38)	Devereux Study (N=89)
1	.86	.79
2	.84	.72
3	.81	.85
4	.92	.90
5	.81	.53
6	.83	.74
7	.80	.82
11	.82	.88
12	.76	.85
CLUSTER		
1	.88	.78
2	.73	.81
3	.90	.85

\*Acceptable reliability coefficients fall within the range .70-.98



# Devereux Scales

## Summary

Most of the statements incorporated in the Devereux factors lend themselves to observable and denotative information. It is believed possible, and is therefore recommended, that the Devereux scales could be used with visually impaired children for a) more specific behavioral and educational evaluation, b) behavioral intervention measurement, c) curriculum and program feedback in an educational setting, and d) screening of total school populations for students who may be temporarily labeled "multiply-handicapped" because of their suggested behavioral problems. It is reasonable to assume that the Devereux scales could be viable evaluation instruments in a residential school's reorganization.

The authors gratefully acknowledge the supportive assistance of Dr. Burton J. Lewis, superintendent, Kansas State School for the Visually Handicapped. The research reported herein was partially supported by the Title I funds, P. L. 89-313.

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**Table 7. Devereux Elementary School Behavior Rating Scale. Test-Retest Reliabilities. Comparison of the Present Study with the Devereux Study**

BEHAVIOR FACTOR	SPEARMAN RHO RANK- DIFFERENCE CORRELATION*	
	Present Study (N=13)	Devereux Study (N=128)
1	.65	.91
2	.92	.88
3	.84	.87
4	.85	.87
5	.94	.85
7	.93	.86
8	.84	.89
9	.93	.88
10	.88	.87
11	.95	.89

\*Acceptable reliability coefficients fall within the range .70-.98

## Expanding Research on Aging

After a year devoted primarily to planning and organizing, the National Institute on Aging (NIA) now tends to expand the research being done on the clinical, behavioral, and societal aspects of aging. Priority research areas planned for 1977 include: 1) Studying the effects of mandatory retirement, the problem of transportation to community and medical facilities, and the stigma attached to old age. 2) Determining what factors lead to longer life and better health. 3) Researching the causes of change in drug sensitivity and response due to increasing age.

A new program of special research grants is also being proposed for 1977. The program would provide \$1 million (maximum of \$15,000 per grant) for 75 young scientists to research some aspect of aging. Through these grants NIA hopes to stimulate more interest in the field of aging.



# Comment

*A special forum for individuals to respond in detail to material published in the New Outlook for the Blind or elsewhere, to present new ideas, or to raise issues which relate to the specialized field of work with blind and visually handicapped persons. Contributions should be 350-1000 words in length.*

## Orientation and Mobility Adaptations and Modifications for the Experientially Deprived Adult

### Raymond Blakeslee

An apparently hopeless congenitally blind traveler was successfully taught to become semi-independent with a personally programmed application of general mobility techniques and use of sighted assistance. This came about as the result of an abrupt and radical change in methodology after seven months of unsuccessful mobility training. This is her case study which includes approaches and insight that may prove beneficial to clients of all ages and backgrounds with comparable mobility problems.

Ms. B. was 21-years-old when she was assigned to me for mobility training. She had been totally blind since birth as a result of retrolental fibroplasia, (RLF) and was devoid of all prevocational blind skills offered by our vocational independence program at the Foundation for the Junior Blind. She had been living at home with an overly protective father; her mother is dead. During the initial evaluation, she was very tense, anxious and nervous. Several times she broke down crying. She was unable to verbally express herself and was totally dependent upon sighted assistance for all her travel needs as well as most of her personal needs.

### Initial Mobility Training

My first objective was to evaluate Ms. B. for her learning potential for independent travel. Initially, she traveled with a sighted guide everywhere on campus. When she felt comfortable with this technique, we progressed to such basic skills as trailing the walls, protective techniques, independent room orientation, and other pre-cane skills. She next learned basic cane skills and how to use them to maneuver from class to class. Ms. B. progressed slowly but surely; and, after a period of approximately two months, she was able to remain oriented while traveling to her classes independently. She still lost her orientation frequently so that someone either had to assist her or she would have to ask for directions.

The next months were spent with the objective of continued evaluation of the client's learning potential for independent travel. This was accomplished in a residential area away from the training center. Months were spent learning such concepts as: What is an intersection? How many corners does an intersection have? How

many sidewalks intersect each corner, and how does one locate intersecting sidewalks? A great amount of time was also spent learning such basic cane skills as touch and slide to locate curbs, or touch and drag to locate intersecting sidewalks.

During these months, Ms. B. could intellectually express the grid pattern and the street relationships. She mentally planned routes to specific objectives. However, she could not negotiate even the simplest route on a consistent basis. Her anxiety became evident as she became terrified by flies, other insects, and barking dogs. She walked down driveways, crossed streets, and was not even aware of what she had done.

It was at this point that I concluded it was unrealistic to expect her to be an independent traveler. We discussed my conclusion with her candidly. Her reaction was one of relief—she would not be expected to do something beyond her capabilities, and also one of frustration—she would still have to rely upon sighted assistance. She asked many times if with more training she would be able to travel by herself. My answer was always a realistic “no,” and I explained why. She walked much too slowly to cross streets safely. She veered badly while crossing streets and did not realize this. Also, she could not differentiate various traffic patterns. Although I knew she would never function independently, I wondered if I might not assist her to function semi-independently utilizing the sighted public as her universal aid.

### Utilizing the Sighted Public

With this new objective in mind, we started by walking from corner to corner in a light business environment. Next, we traveled around the block negotiating parking lots, gas stations, parking meters, and alleyways, utilizing the public for sighted assistance whenever she needed. We crossed secondary and then primary streets with Ms. B., asking for sighted assistance at every crossing. One problem we encountered was that once she would veer and line up with the wrong street. She was taught to memorize the street sequence and ask for assistance to cross a particular street by name in order to correct this problem. For example, Ms. B. would ask, “Will you please help me across Manchester?” Proper sighted guide techniques were continually emphasized. Instead of the client being pushed and pulled as many sighted people tend to do with a blind person, Ms. B. became adept at insisting on and utilizing safe and effective sighted guide techniques.

Concurrently, Ms. B. had difficulty in explaining her needs to the public. She would stutter when she tried to express herself. Lessons included speech correction through speaking on the telephone requesting specific information, seeking assistance across intersections, making purchases in stores, banks, restaurants, and locating bus stops. In general, placing the client in situations where she had to communicate verbally to make her needs known. This intensified verbal interchange helped to alleviate most of the stuttering.

The whole training program was keyed to the client utilizing the sighted public. As a result, after five months of practice, she is

able to call a taxi and go to her music lessons off campus. She is able to walk between streets in a light business environment and cross streets utilizing the public at every crossing. In addition, with sighted assistance she has learned to negotiate complex bus routes including transfers and to travel safely and efficiently in unfamiliar business environments. Thus, through a concentrated program of consistent application of experience and exposure with the public, Ms. B. can effectively communicate and demonstrate her needs and interests to anyone, and can now travel in an active, semi-independent manner.

*Mr. Blakeslee is a mobility instructor at the Foundation for the Junior Blind, Los Angeles.*

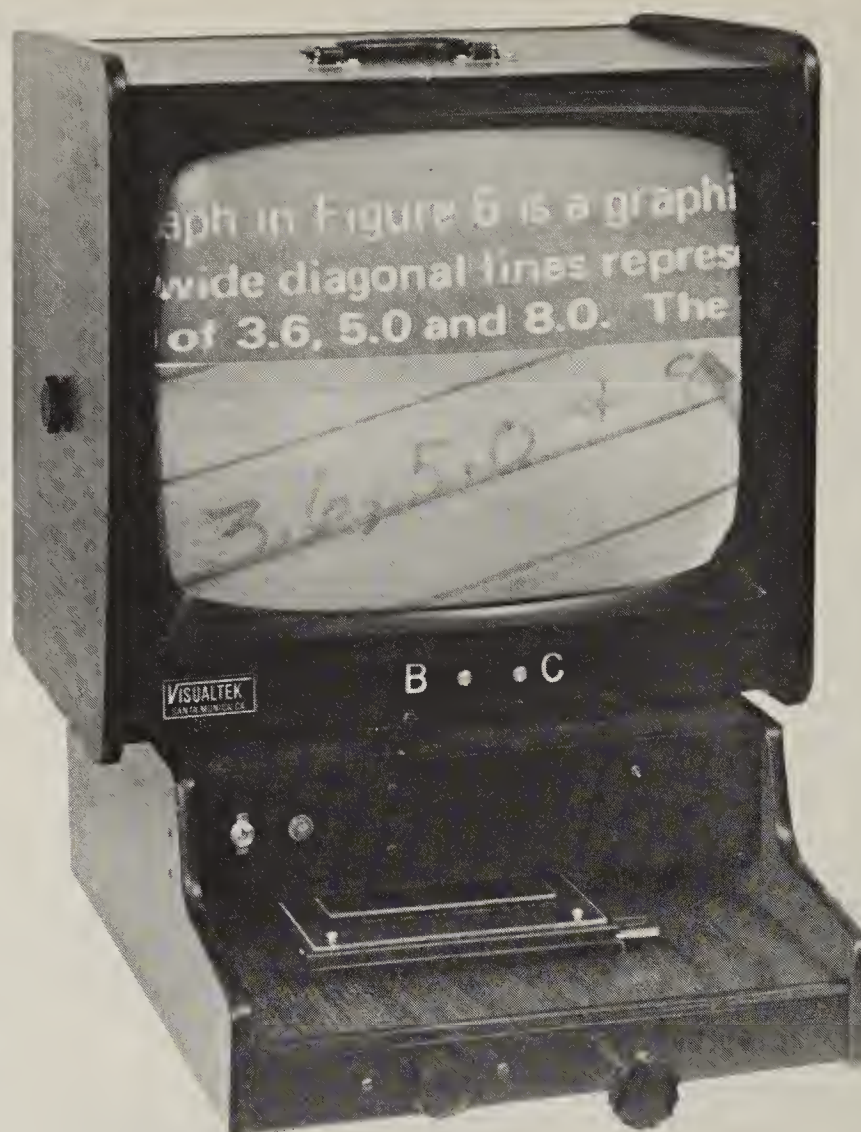
## Something New on Campus

### William B. Campbell Otis H. Stephens

New Courses and new approaches to learning are transforming many universities in the 1970's. Influenced in part by students' demands for greater “relevance” in the curriculum, and even more by rapid changes in technology, some faculty members have begun to consider their basic assumptions about *what* students ought to learn and *how* they can best learn it. Programs in traditional fields such as mathematics, English, and history are becoming more innovative. New courses in communication, computer science, and ecology are gaining recognition and popularity. Lines long separating academic disciplines are gradually eroding. More and more interdisciplinary teaching is being undertaken. In light of the severe financial problems now confronting higher education, it is uncertain whether this trend toward greater innovation and experimentation will continue. But it is clear that many old beliefs about the proper content of a university curriculum and the best ways to convey and absorb knowledge are, more than ever, open to debate.

In keeping with the changing campus environment, we here at the University of Tennessee decided about a year ago to offer an unconventional elective course called Engineering Aspects of Blindness. Although our professional fields, biomedical engineering and political science, are far apart, we share a common concern about the difficulties facing university students who have serious physical impairments. Bill Campbell has long been troubled about the problems that our man-made environment imposes (often unnecessarily) on physically handicapped persons. Otis Stephens, like many other blind persons, finds a number of these problems to be simply part of the routine of life on a congested campus. Both of us recognize that the occupational and social discrimination still encountered by many physically handicapped people is compounded and often directly influenced by difficulties inherent in an environment that has been allowed to develop with little regard for their special needs.





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## Spotlighting Difficulties

We decided to go beyond the mere recognition and criticism of this problem by offering an interdisciplinary course dealing with the kinds of environmental difficulties that blind persons encounter on a large urban campus, and identifying ways by which to alleviate these difficulties. One of our objectives was to sensitize sighted persons to the routine problems that a blind person faces in going from place to place on campus and in gaining access to university programs and activities. Since most students do not have to deal with these problems at all, our first task was simply one of spotlighting the difficulties.

The campus of the University of Tennessee is quite an obstacle course, even for people without physical impairments. It covers several hundred acres, is bisected by numerous busy streets, and has its share of rough sidewalks, steep hills, and noisy construction work. Add to this the erratic driving and parking habits of thousands of students, and you have nothing short of a mobility nightmare for blind persons.

We took this sprawling, crowded campus as our laboratory and assigned the class a twofold task: first, each of the eleven students was given a part of the campus or service area immediately adjoining it and was required to identify and describe every recognizable hazard or obstacle in that area. In an effort to make the situation more realistic, the students walked blindfolded either through a classroom building or on a heavily used campus sidewalk—always taking reasonable safety precautions, but trying to gain first-hand impressions of what a blind pedestrian typically confronts. The second phase of the class assignment was development of a master tactile map of the campus and adjacent business district. Copies of this detailed map will soon be available, free of charge, to blind students, faculty members, and visitors.

The students presented oral and written reports on their segments of the class project. These reports contained, in addition to basic information, many suggestions of ways in which various physical barriers could be reduced or eliminated. It was interesting, but by no means surprising, that the students pointed out a number of obstacles that are potentially as dangerous to sighted persons at night as to blind people around the clock. From time to time, several blind persons from the local community visited our class and added their impressions of the problems that a large campus poses for anyone with a visual impairment. In class discussion, we attempted to explain the close relationship that exists between a blind student's self-confidence or uncertainty, success or lack of success, and the ease or difficulty of physical access to the full range of campus activity.

## Evaluation of the Course

Students were positive in their evaluations of the course. We were generally pleased with the experiment and felt that the course was successful in at least two respects: it gave to one group of under-

graduate students a chance to deal first-hand with human and environmental problems of a very practical kind, unnoticed by most people, and yet directly affecting virtually all blind persons who travel independently in urban areas; and the course served as a basis for direct action aimed at the reduction of difficulties that for years have frustrated blind students on the UT campus. The undergraduate Alumni Council, for example, has funded duplication of the master tactile map so that it can be made available to anyone needing it.

The course will be offered again next year; and if evaluations continue to be favorable, it will probably be added to the curriculum in biomedical engineering.

*Reprinted with permission from the Braille Forum, November-December 1975, Volume 14, Number 3.*

## Give Them An Inch And They'll Take A Meter

By Paul E. Thiele

Blind people around the country are no different from anyone else, bellyaching about the confusion which this whole metric madness is causing all of us. What makes it harder for the blind is that, while the Metric Commission spends zillions putting out guides and instructions in print, so far, to our knowledge, they haven't commissioned anything in braille, on recording, or in large print for those who cannot read ordinary print.

I was born and raised in grams and centimeters; but, after 20 years in Canada, I can't bend my mind around thinking of myself in kilos, especially since I have just dropped 35 of the old-fashioned Canadian pounds; and I have enough trouble getting used to fitting into narrower spaces again. If you've suddenly discovered that your mere 36-24-36 dimensions have grown overnight into a bombastic 116-66-116, and you didn't actually do anything about it, cheer up; things will get worse.

A good part of our language will have to be rewritten or scrapped, as many old-fashioned expressions will become obsolete. An inchworm, for example, will become a 2.7 centimeterworm. You may not want to touch a certain deal with a 3.4-meter pole. You will have to decide for yourself whether you're walking a country kilometer or an 0.75 mile. Five foot two, eyes of blue gets updated to a meter sixty-one and lots of fun. And the old song about a bushel and a peck and a hug around the neck will be "I love you a whole hectoliter and a pat upon the seater."

Crane Library has all the meter materials, including a metric cube and various conversion things. These are in print, but we will assist you with them. In the meantime, we hope that the Metric Commission might remember the 100 thousand or so Canadian taxpayers who, for reasons of various handicaps, cannot read ordinary print, and commission somebody to create some attractive non-print materials.

*Reprinted from the Crane Library News, Vol. 6, No. 3, University of British Columbia.*

# Letters to the Editors

To the Editors:

We want to point out that the questions raised in the introductory article to the *New Outlook* issue on assessment (October, 1975) are pertinent and provocative. It is certainly recognized that the issues raised on these specific questions could not all possibly be answered in one journal issue. However, such questions as *what norms should be applied in interpreting the test results*, and *what is the correlation between norms for sighted subjects and blind subjects*, have not been adequately considered by the participating authors. It is stated repeatedly that normative data are inadequate but little attention is given to the questions of what should be done to remedy this situation. There is a degree of naivete to the discussion of measurement which is rather disconcerting.

We certainly recognize that in adapting materials for the blind and visually handicapped, standardization is very difficult, and frequently a good deal of clinical judgment is required. This concession to the difficulties of test adaptation, however, does not justify not answering the basic measurement questions. It has been stated that there is a good deal of difficulty in establishing norms for the visually handicapped, but (with the possible exception of the HISAB), the efforts demonstrated thus far in test development and adaptation are generally inadequate, insufficient, and frequently misleading. No statement is made by any of the authors concerning the need for cross-validated studies.

We must note our exceptions to Dr. Chase's proposal that the benefits which accrue from the combining of instruments are many. We do not agree that the employment of a battery of measures is always preferable to a single test for behavioral assessment. It has been rather clearly demonstrated that when psychological decisions relate to personality and cognitive characteristics of individuals, more information frequently is confounding and results in more inappropriate decisions than correct decisions. In support of this, we cite Paul Meehl's volume on *Clinical Versus Statistical Prediction*, (University of Minnesota Press, 1954, Minneapolis). On the whole, Dr. Chase's article on developmental assessment of handicapped infants and young children, with special attention to the visually impaired, was excellent. She is apparently aware of the limitations of the instruments that she discusses and recognizes their lack of predictability and, in many instances, their lack of reliability. The *input* that Dr. Chase is looking for from the parents, psychologists, social workers, physicians, etc., cannot be faulted. One apparent question is whether or not a particular developmental sequence once spotted, such as a motor area deficiency or a language area problem, may not reflect a more





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generic interrelated type of developmental problem. In this case would not remediation or recommendations for remedial procedures to parents or other educators be misleading? There certainly are occasions where wisdom dictates not intervening or attempting to interfere with the developmental sequence of the child but rather waiting for ontogenetic and philogenetic development to unfold, obviating the need for intervention which may not be necessary or even desirable in terms of the time expended and the results obtained. One of our strong concerns is how to effectively assess the multiply handicapped person such as the deaf-blind, organically impaired, visually handicapped, and the retarded visually handicapped client. More attention should be paid to evaluative devices and adequate assessment procedures for these subgroups.

Dr. Morse, in his article concerned with answering the questions of psychologists assessing the visually handicapped child, has by and large provided a good deal of insight and perceptive assistance for unsophisticated clinical psychologists or school psychologists. We have no quarrel with his overall points of reference that would appear to be quite useful for any person who is not familiar with the needs of visually handicapped children and adults. The only fault we find with this article is that it is quite prescriptive and circumscribed in that cognitive and intellectual assessment are the major considerations. There is little discussion of other very meaningful variables, such as the assessment of personality, aptitude, and achievement; or the necessity for the use of braille and its concomitant difficulties. His discussion concerning utilization of the Bender Gestalt and the block design subtest (WISC or WAIS) is contrary to some of the observations that we have made at the Lighthouse when the closed circuit television camera has been utilized with these assessment tools. It is very difficult to differentiate between a receptive and expressive visual motor problem and the materials presented in this article do not really deal in any depth with these problems.

Dr. Bauman has given useful information about the types of assessment instruments and about the problems involved in making recommendations for vocational choice for blind and visually handicapped clients. Her discussion of various test instruments is rather thin and does not adequately deal with some of the more obvious limitations to their general applications, such as discrepancies in available norms for blind subgroups with respect to the Stanford-Ohwaki-Kohs Block Design Test. She (as well as the other contributors) ignores a potentially useful test developed as an assessment instrument to predict vocational achievement in the framework of the rehabilitation process; namely, the VISAB. This test was developed for use with various vision groups (high, middle and low) which is highly relevant for rehabilitation purposes.

In addition, there is a dearth of information in her article regarding the specific vocational tests which might be employed in guiding the vocational choices of visually handicapped persons. Vocational



interest tests, particularly the Strong Vocational Interest Blank for sighted individuals has proved to be one of the more carefully standardized and worked up instruments in psychology. It is probable that congenitally blind individuals will probably have an idiosyncratic way of identifying with specific occupational choices. Unfortunately, we have not adequately investigated what it means if, for example, a blind individual indicates that he or she would like to be an airplane pilot. The concomitant of that type of response in terms of drive or aspiration may provide considerable insight into the client's aspirations although not providing data concerning realistic vocational choice. Most test experts will agree that they cannot guess without empirical verification in which direction certain responses go. What is needed is a great deal of exploration and experimentation in all areas where we are dealing with idiodynamic variables.

Dr. Bauman in considering personality measures has not been exhaustive but has indicated that the Sound Test can be substituted for the TAT. The Sound Test did not derive from the TAT although both utilize ambiguous stimuli, and while the Sound Test may be employed projectively, it is presented as a measure of cognitive style, i.e. field dependence-independence. It is not entirely responsible to portray the Sound Test as a substitute for one which has been so thoroughly reviewed as the TAT. Furthermore, in view of the fact that most of the projectives such as the Rorschach or the TAT are not entirely applicable for the blind and visually handicapped, some consideration should be given to the stronger objective personality measures such as the Minnesota Multiphasic Personality Inventory, Minnesota Counseling Inventory, and others.

Beyond the purview of Dr. Bauman's article, we find it disconcerting that some efforts are being made to publish descriptive lists of psychological tests which can be employed with blind and visually handicapped persons with no apparent attempt to clinically assess the special features and limitations of the various instruments, or to caution those psychologists with little experience in this field against over-interpretation and over-utilization of test findings under particular situations. We are referring specifically to the new AFB publication entitled *Measures of Psychological, Vocational and Educational Functioning in the Blind and Visually Handicapped*, and hope that our criticisms are unfounded. A similar criticism must be directed at the AFB's summary of workshops for school psychologists, prepared by Dr. Freedman, which appears superficial for the intended purpose of developing experts in psychological testing of blind and visually handicapped children. We trust that the participating authors are aware of the need for criterion-oriented measures for the visually handicapped. These must be studied relative to realistic vocational and professional opportunities for blind and visually handicapped persons.

Dr. Freedman has provided a distinct contribution in his presentation on working with a geriatric visually limited population. We support his overall concern regarding the needs and right of consumers

of psychological information—namely, the client. However, the general disregard of psychometric considerations does concern us since the ground rules for selection and adaptation of psychological measures is generally ignored in this and other articles. We refer the reader to our original comments concerning basic questions prepared in the introductory article which have not been answered. To illustrate, the question of who should have the responsibility for adapting psychological tests received virtually no attention.

Psychological evaluation can produce an overemphasis upon traits or characteristics which may have little relevance to the purposes for which the client is being evaluated, and we desire to balance any implication in these articles that psychological evaluation should be performed in any routine or mechanical way.

Robert Adrian, Ph.D.  
Laurence Miller, Ph.D.  
Dhiraj Nanavati, M.A.  
Psychologists  
New York Association for the Blind  
New York City

To the Editors:

I find the concept of this dialogue most exciting. First of all, I think the assessment issue of the *New Outlook* establishes a concise body of knowledge required by psychologists interested in working with people who are blind. Secondly, it was gratifying to see the thought and scholarship applied in critiquing the articles by such experienced psychologists. The continuation of such a dialogue should be encouraged on a face to face basis. The authors and reviewers are all clinicians who are interested in research as well. The pooling of talent might result in the creation of assessment instruments that all of us recognize are needed.

In traveling about the country I have received much positive feedback regarding the significance of these articles. This has been offered by people representing many varied disciplines.

While in disagreement with some of the constructive comment offered I think that the *New Outlook* could offer a most vital service by inviting questions from the field with invitations then offered for response and publication. Dr. Adrian, Dr. Miller and Ms. Nanavati are to be recognized for their interest and effort.

Saul Freedman, Ph.D.  
Psychologist  
Center for Independent Living  
New York City

To the Editors:

Thank you for sending the critique from the New York Association for the Blind psychologists. Some of the points raised are extremely relevant.

The comments made by Adrian, Miller and Nanavati regarding my article offer valid questions. I shall respond individually to them:

1. "We must note our exceptions to Dr. Chase's proposal that the benefits which

accrue from the combining of instruments are many. We do not agree that the employment of a battery of measures is always preferable to a single test for behavioral assessment. It has been rather clearly demonstrated that, when psychological decisions relate to personality and cognitive characteristics of individuals, more information frequently is confounding and results in more inappropriate decisions than correct decisions."

While I have some questions about these statements regarding the "customary" use of psychological tests, I feel particularly strongly about their validity when applied to assessment in infancy. As I stated in the article, the *purpose* of early evaluation is *programming* for enhancement of development. In view of the "learning explosion" which takes place during the first three years of life, and the specific areas of growth involved, only a variety of measures can indicate the interventions needed. We are dealing, essentially, with both different *purposes* and populations than those referred to by Meehl.

2. "One apparent question is whether or not a particular developmental sequence once spotted, such as a motor area deficiency or a language area problem, may not reflect a more generic interrelated type of developmental problem. In this case would not remediation or recommendations for remedial procedures to parents or other educators be misleading? There certainly are occasions where wisdom dictates not intervening or attempting to interfere with the developmental sequence of the child but rather waiting for ontogenetic and phylogenetic development to unfold, obviating the need for intervention which may not be necessary or even desirable in terms of the time expended and the results obtained."

I feel particularly defensive about this point. We have had occasions, during the course of our Infant Clinic, where our concerns about a youngster proved, in the course of time, to have been unfounded (although the progress seen *may* have been the result of our interventions). Nonetheless, the parental questions were not discounted, and they had an opportunity to "checkout" their suspicions in a fairly objective way. All too often, in our society, parents are told "not to worry" when there are real problems. If we bend over backwards in the opposite direction and allay their fears, I do *not* believe we are wasting time or money. Such reassurance may be just what is needed by the family to help it over a particular developmental obstacle.

3. "One of our strong concerns is how to effectively assess the multiply handicapped person such as the deaf-blind, organically impaired, visually limited, and the retarded visually limited client. More attention to evaluative devices and adequate assessment procedures should be dealt with for these subgroups."

I, too, am concerned, and appreciate the importance of this comment. Since writing the article, several new assessment procedures have come to my attention. They may have particular value in evaluation of multiply handicapped preschoolers. They include:

A. Learning Achievement Profile



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B. Learning Achievement Profile for Infants

(Both of above produced at the Chapel Hill Training-Outreach Project, North Carolina)

C. Teaching Skills in Early Childhood Programs-Anastaslow and Mansergh, *Exceptional Children*, 40:5, 1975, 309-3417.

D. Various Measures in *Exceptional Infant: Volume 3: Assessment & Intervention*, Friedlander, Sterritt & Kirk, New York: Brunner/Mazel, 1975.

E. *Assessment in Infancy: Ordinal Scales of Psychological Assessment*, Uzgiris & Hunt, Urbana: Univ. of Illinois Press, 1975.

In spite of such recent work, the measures available for assessment of severely and multiply handicapped youngsters remain limited. Perhaps the New York Association for the Blind, with their broad experience in this area, can help the field by developing new instruments.

Joan B. Chase, Ed.D.

Associate Professor of Psychiatry  
Rutgers Medical School  
Community Mental Health Center  
Piscataway, New Jersey

To the Editors:

I am glad to respond to your request for a reaction to the commentary by the Lighthouse staff. In fact, I have no strong reaction; I am inclined to feel that a series of little misunderstandings account for most of the difference between my article and their comments.

I completely agree that my discussion of test instruments is "rather thin" since in our meetings to plan this issue of the *New Outlook* it was agreed that this was not to be another article on tests, but was to encompass a broader view of factors to be considered relevant to vocational choice. Tests were merely mentioned as one such factor and space did not permit greater depth of discussion.

As for the Stanford-Ohwaki-Kohs, I discarded it years ago and did not mention it in my article. What I referred to is the very different, and differently normed, Stanford Kohs Block Design Test. Nor did I mention the VISAB because I think it irresponsible to recommend a test which is not available. To make certain that I am not wrong about its availability, I talked with Dr. Robert Teare, under whose management that and the other Purdue tests are. Dr. Teare authorizes me to say only that, after many years of being totally "out of print," attempts are now being made to make the materials available at same date as yet undetermined.

I did mention the possibility of using any questionnaire type of interest or personality measure by reading to the client and specifically mentioned the Strong, Kuder, and California as frequently used. Because there has been little in-depth study of the differences in response patterns between blind and sighted on any of these inventories, I can do little more than repeat the suggestion made in my article to the effect that a psychologist who becomes very familiar with blindness and its psychosocial effects, and who is very comfortable with a particular interest or personality inventory, can probably use that inventory pretty effectively with blind clients. I did not mean to say that the Sound Test is the

equivalent of the TAT and admit my use of it may be peculiar to me, but I do find that many resulting protocols throw light on more than the narrow dimension of field dependence-independence. Sections of the Auditory Projective Test are, of course, much closer to the TAT and for some purposes it is my favorite. It is sad that Braverman and Chevigny were not in a position to do further work on it.

I can only hope that these few reactions will be helpful.

Mary K. Bauman

Director

Nevil Interagency Referral Service  
Philadelphia, Pennsylvania

To the Editors:

I was asked by the *New Outlook* editors to participate in the planning and publishing of a series of articles pertaining to "Assessment and the Blind." Specifically, I was asked to write a relatively brief article directed to assessors with little or no experience with the visually handicapped. The article was to reflect my experience and be of practical value. Moreover, it was to be experientially based and not a theoretical, documented, or reference work.

Obviously, the length limitation negated the discussion of all issues of concern to inexperienced assessors of the visually handicapped. However, those questions I answered were the most frequently asked. Concerns relative to personality, aptitude, and achievement assessments as well as questions regarding the use of braille simply have not been as frequently asked of me as those included in the article. The point should be made that assessors with little or no experience regarding the visually handicapped are concerned with increasing their observational and interpretive skills and not obtaining an understanding relative to issues and parameters related to vision loss.

I disagree with the statement made by Adrian, Miller, and Nanavati that, "The only fault we find . . . in that cognitive and intellectual assessment are the major considerations." A review of the 15 questions answered in my article reveals that only three were related to cognitive and intellectual assessment. The remaining 12 pertained to visual loss, classroom observation, parent, behavioral, and general testing considerations.

Adrian, Miller, and Nanavati additionally made the observation that, "It is very difficult to differentiate between a receptive and expressive visual motor problem . . ." As a reaction to my discussion of comparing a client's performance on the Binder-Gestalt and the block design subtest (WISC or WAIS), I agree but their observation does not pertain to the point made in the article. I discussed the need to distinguish between a visual reception and a visual perceptual problem when alluding to the above mentioned tests and in the receptive versus expressive problem.

I hope that the journal's articles will continue to stimulate interest and that additional dialog will occur.

John L. Morse, Ed.D.

Psychologist

Concord, New Hampshire

## Review

**Low Vision**, by Eleanor E. Faye, M.D., and Clare M. Hood, R.N. Springfield, Ill.: Charles C Thomas, 1975. 284p. \$19.50.

Reviewed by Catharine K. Christiansen

The 20th Anniversary Seminar of the Lighthouse Low Vision Service, New York Association for the Blind, impressed those in attendance with the wide range of topics presented by well recognized leaders in the field. It is our good fortune that these papers have been skillfully edited by Eleanor E. Faye, M.D., medical director, Lighthouse Low Vision Service, and Clare M. Hood, R.N., administrator, and are available in a useful new book, *Low Vision*.

The title might well have been *Handbook of Low Vision*, because of the wide range of subjects and their careful arrangement by section, with the grouping of related presentations. This book deserves a prominent place on every low vision resource shelf, hopefully within easy and frequent reach of the person responsible for supervision of the low vision clinic.

Supervisors and administrators may be tempted to turn first toward the back of the book where, in Section Eight, the procedures in four leading low vision services are detailed. Samples of forms, guidelines for basic low vision history, specifics of a loan system, and other details are given. The importance of careful instruction and good follow-up to the person with a newly prescribed aid are stressed. In this one section we find ideas for checklists, for staff interchange, and for planning for new or improved services.

### Topics Covered

Starting more conventionally with Section One, we are presented an excellent text on optical and non-optical aids, which should be of interest to anyone who works with people faced with learning to live with reduced vision. Magnifiers are fully discussed and illustrated clearly enough for even a beginner in the field, and telescopic systems are made understandable. There are separate chapters on aphakia and low vision, and on the uses of closed-circuit television. The uses and value of non-optical aids are also presented. And don't miss the section that follows on the development and design of optical aids for the best answer yet to the often asked, "Can't you make the field bigger?"

Surgical and medical advances in ophthalmology are well covered in Section Four, while Section Five covers field defects in the same perspective. Corneal, cataract and vitreous surgery are described with some history of the procedures. Retinal diseases and laser treatment as it relates to low vision are presented. The concluding chapter in this section has excellent illustrations and text to aid our understanding of the use of mirrors and prisms to aid field defects.



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Pediatric and geriatric low vision are each fully covered in separate sections. We would like to frame the six points worthy of emphasis at the conclusion of the opening chapter on pediatric low vision. The discussions of vocational rehabilitation, with emphasis on the use of low vision aids, offer good suggestions for closer cooperation and interchange with the rehabilitation specialists.

The chapters on geriatric low vision urge our consideration of new approaches to reaching this particular population; good examples of innovative programs are given. The need for modification of the low vision examination and factors affecting rehabilitation also deserve careful consideration.

### Driving with Telescopes

A real service is rendered in the presentation of an entire section on driving with telescopes. Opinions of the well experienced authors vary from supportive to negative, and demand an open mind on the part of the reader. This controversial subject is sure to surface at some point for every low vision service. This information should be valuable for review.

The models of low vision clinics were discussed at the outset of this review. The concluding section covers various aspects of training, including a detailed training program for a low vision technician. The importance of the contribution this well trained person can make in a well run clinic is stressed.

In closing, the reader is reminded to review the list of contributors at the outset of this book. Their knowledge and experience in the field is impressive. These authors have given readers a bonus in the references they list at the end of each chapter, making it possible to pursue subjects of particular interest.

For this and many other reasons, *Low Vision* is an uncommonly comprehensive handbook for anyone involved with visually handicapped persons. Supervisors and administrators will find it a most helpful addition to low vision literature.

*Ms. Christiansen is the coordinator of prevention of blindness services, Sight Center, Cleveland Society for the Blind.*

**MBO for Nonprofit Organizations**, Dale D. McConkey. New York: AMACOM, Division of American Management Associations, 1975. \$12.95. 223p.

### Reviewed by Jacob Ross

In the past good management has been confused with good acting style; the panache, decisiveness and drama with which decisions and programs have been carried out. Much of history records the wreck of great programs lead by managers (kings, prime ministers, generals) with every requisite for success except a clear idea of what should and could be accomplished with available resources. Too

often, therefore, mediocre results have been hidden by brilliant performances.

The art of good business management has but one goal—to produce results effectively and efficiently. All else is not good management. Results, according to Peter Drucker, is the creation of more clients or customers for your product or service by anticipating needs and delivering a way to satisfy them. In business, the by-product, according to Drucker, of performing this mission well is increasing profits, which are enhanced by the degree that management acts efficiently as well as effectively.

### MBO for Non-profit Agencies

In the non-profit field, however, where no such criteria or guideline exists, it is necessary to provide substitute measure of accountability because there is, as in business, the need to anticipate the needs of clients and satisfy them. In the past, however, management has been negligent and lax in addressing the problem of effectiveness in the non-profit field, effectiveness being looked upon as required almost exclusively of private sector managers. But, non-profit organizations are not unique—they, like other organizations, have objectives to achieve and assets to employ. They too, must be held accountable for results.

According to Dale D. McConkey, Professor of Management at the University of Wisconsin and one of the few management consultants who has addressed himself to the problem of increasing the effectiveness of the non-profits, the question that plagues most managers, administrators, and executive personnel of non-profit organizations is how the improvement in performance can be brought about—what means, methods and tools are available. In his book, *MBO for Non-profit Organizations*, Professor McConkey recommends the system of Management by Objectives (MBO) as a practical, proven system of management for non-profits as described in terms of its five components: 1) Establishment of specific, time limited, measurable, clearly assigned objectives. 2) Development of concrete plans and actions, which, when completed would result in the accomplishment of those objectives. 3) Managerial direction and action to carry out plans. 4) Control and monitoring. And, 5) Feedback.

Professor McConkey points out that accountability needs are growing in the non-profits, which now constitute 20 percent of the national economy and are equated with poor management in the minds of the public as against good practices in the profit sector. Professor McConkey's definition of MBO is "... a systems approach to managing an organization—any organization. It is not a technique or another program, or a narrow area of the process of managing. Above all, it goes beyond mere budgeting even though it does encompass budgets in one form or another.

"First, those accountable for directing the organization determine where they want to take the organization or what they want it to achieve during a particular

period (establishing the overall objectives and priorities).

"Second, all key managerial, professional and administrative personnel are required, permitted and encouraged to contribute their maximum efforts to achieving the overall objectives.

"Third, the planned achievement (results) of all key personnel is blended and balanced to promote and realize the greater total results for the organization as a whole.

"Fourth, control mechanism is established to monitor progress compared to objectives and feed the results back to those accountable at all levels."

### Elimination of Hit-or-Miss

MBO advocates a systematic approach to achieve desired ends, that is, elimination of hit-or-miss methods. But not all organizations are ripe for it. The following questions are indeed necessary criteria for MBO installation:

1. Does the organization have a mission to perform? What is its valid reason to exist?
2. Does the management have assets entrusted to it (money, people, plant and equipment)?
3. Is management accountable to some person or authority for a return on its assets?
4. Can priorities be set for accomplishing its mission?
5. Can operations be planned?
6. Does management believe it must manage effectively?
7. Can key personnel be held accountable and pinpointed?
8. Can the efforts of all key personnel be coordinated into a whole?
9. Can necessary controls and feedbacks be established?
10. Is it possible to evaluate the performance of key personnel?
11. Is a system of positive and negative rewards possible?
12. Are the main functions of the manager the same regardless of the type of organization?
13. Is management receptive to improved methods of operating?

### Administering MBO

If the answer is yes to the above then MBO systems are advisable for an organization. To administer MBO the following conditions must be met:

1. The selection of highly competent managers, administrators and professionals for all key positions.
2. In-depth training in the complete MBO system before any attempt is made to apply it.
3. Allowing three to four years required for successful implementation.
4. Substitution of maximum participation for the sometimes autocratic and despotic views of a few.
5. Complete tailoring of the MBO system to individual problems or conditions existing in the organization.
6. The removal or diminishing of impediments to achieving results such as poor personnel practices, etc.
7. Constant monitoring and re-examination of the system and its operation to meet new conditions.



# FILM SEARCH

## OBJECTIVE

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## Benefits of MBO

The benefits of MBO are that it encourages and stimulates:

1. Decentralized initiative vs. centralized technocratic direction.
2. Participative style vs. authoritarian style.
3. Teamwork vs. individualism.
4. Future focusing vs. day-to-day management.
5. People orientation vs. product orientation.
6. Consumer orientation vs. organization orientation.
7. Results orientation vs. activities orientation.
8. Creation of innovation vs. administration of routine.
9. Emphasis on "what to" vs. emphasis on "how to."

In an environment characterized by an increasing rate of change and complexity of needs and operations, MBO can be a potent means of meeting the challenges because it can align the efforts of managers to the work and goals that have been agreed upon. It helps organizations concentrate on important matters rather than routine. It also provides concrete means for nonprofits to dramatize their contributions and establish credibility.

In general, Professor McConkey points out that the benefits of greater cohesion, economy, and effectiveness must be worked for. MBO is neither simple to initiate nor acceptable to many managers who are unaccustomed to its disciplines. MBO is basically a discipline based on a philosophy of group responsibility, and belief in one means adherence to the other. The extent of this commitment has been detailed by Peter Drucker when he maintains that MBO, its installation and operation, is the organizational system most difficult to manage because each part is dependent for effective operation and goal achievement on clear communications, adequate information, participative agreement, and responsiveness by all levels of staff. As Professor McConkey points out, the emphasis in MBO is not objectives, it is management.

*Mr. Ross is the executive assistant for the American Foundation for the Blind, New York City.*

**Academic and Entrepreneurial Research: The Consequences of Diversity in Federal Evaluation**, studies by Ilene N. Bernstein and Howard E. Freeman. New York: Russell Sage Foundation, 1975. 208p. \$8.95.

**Reviewed by Robert W. Mann**

The Russell Sage Foundation is to be commended for instigating and funding an intriguing study which scrutinizes the evaluation process by means of which our Federal government purports to establish the utility of social action and intervention projects in health, education, welfare, housing, law enforcement (e.g., The New Deal, Great Society, and their successors).

As more and more of our tax dollars shift from "guns to butter," we are finding that resources are both bounded and inadequate. So what could be more reassuring than hearing that policy and program decisions made by Congress and the Administration are based on sound, thorough, and convincing data, flowing from an estimated 100 million dollars per annum of "evaluation-research"? Unfortunately the study on which this trenchant and compact book is based gives an overall grade of about "D" for contemporary evaluations, while identifying and emphasizing a dilemma that provoked the obscure title (the subtitle is more to the point).

The authors' idea was to do a comprehensive evaluation of the effectiveness of the evaluation of government social programs. But even assembling all studies conducted during a specific time frame proved insuperable, given the diversity of final reports (which aren't even produced in many cases) and the difficulty of just finding them. The authors settled on skimming through titles and, if necessary, abstracts of all "evaluation" projects (the original search excluded only those studies under \$10,000 annually and those especially concerned with laboratory, management, and methodological questions) underway in Fiscal Year 1970, although this meant relying on descriptions of what was to be done rather than reports on final results.

### Shrinking Material

The shrinkage of usable material for the actual study was illuminating. From a preliminary population of about one thousand studies, an internal review at Sage and consultation with the Federal agencies sponsoring the work left 416 studies, which further shrank to 382 when the organizations who did the work were contacted and asked whether they had done evaluation research.

A carefully constructed and tested questionnaire yielded 236 useful responses. The questionnaire sought information on the organization and personnel conducting the study, the target population, the nature of the action program, the methodological procedures used to establish whether the program was faithful to its guidelines and to measure the program's impact, and how dissemination and utilization of findings were to be achieved.

Careful analyses and interpretations correlating such variables as the sponsor Federal agency, award dollars, project term, nature of contractee or grantee organization, degree level and professional field of project director, relationship between evaluating and evaluated project personnel, and between evaluator and sponsoring agency are presented.

### Interpretation of Data

The authors supplement data with interesting and, in this reviewer's view, valid interpretations of the sociology of how research is identified, proposed, reviewed, awarded, and reported. Their characterization, for example, of the N.I.H. Peer Review process is a clear description of both *how* and *why* it works. An extra dimension was

added by comparing the N.I.H. review process with that of other Federal agencies, including other branches of H.E.W., Labor, Agriculture, and Justice. The N.I.H. process proved superior by a wide margin.

Using a quantitative multi-variant analysis, the authors critically dissect the evaluation industry and lay bare its inadequacies. Some of the results are shockers—23 percent of the investigators had no procedures to measure the impact of the social action programs, only 41 percent of the projects met minimum standards for analyzing data, and only 11 percent of all studies were evaluated as "high quality." Other results are intriguing. The authors, both sociologists, learned that the project director most likely to succeed is a Ph.D. psychologist, rather than an economist, psychiatrist, educator, or even sociologist.

### Catch 22

A persistent pattern in the analysis gave rise to the book's primary title. Consistently grants for three years or more to educational institutions employing formal theoretical models produced the high-quality outcomes. Conversely contracts for one to one-and-one-half years to profit-making organizations bereft of theoretical bases, produced the low-quality work. Hence the "academic-entrepreneurial" polarization! But the Catch 22 is that academics decide for themselves what research to do, while the government needs assessments of specific ongoing, and even better, anticipated programs in order to make better policy decisions.

### Recommendations

Professors Bernstein and Freeman don't stop at their lacerating analyses, nor their insightful interpretations—they go on to a sweeping set of recommendations to set the "evaluation industry" straight. These include elevating evaluation in the executive departments, assigning funding review to O.M.B. for the White House and G.A.O. for the Hill, enticing academics to contribute to pedestrian evaluations by participating in specification preparation and by acting as monitors and auditors, and by emulating the N.I.H. Peer Review mechanism in other agencies procuring evaluation.

I sincerely hope the title doesn't inhibit circulation of the book. It needs to be read by the industry itself, by the Federal bureaucracy, and of all, perhaps most by politicians, for as has been remarked, evaluation research on social-action programs is no longer a neutral academic pursuit, but an effective political tool.

I consider this an important work which concisely and convincingly describes the shambles evaluation is now in, and which presents specific, albeit wide-ranging, proposals for improvement. Our society is inevitably committed to social action, but it must be selective in both weeding out ineffective efforts and testing new concepts. The authors set out the criterion for doing evaluation in a credible fashion. We can't afford to do it any other way.

*Robert W. Mann is Whitaker Professor of Biomedical Engineering, Massachusetts Institute of Technology.*



# Current Literature

A report of significant new additions to the M. C. Migel Memorial Library of the American Foundation for the Blind, prepared by Elaine M. Siegel, librarian. These materials may be borrowed from the library.

## Assessment

**Psychoeducational Assessment: Role of Psychologist to Teacher of the Visually Handicapped**, by Susan Jay Spungin and Rose-Marie Swallow. *Education of the Visually Handicapped* (Association for Education of the Visually Handicapped, 919 Walnut Street, 4th Floor, Philadelphia, Pennsylvania 19107), Vol. 7, No. 3, October 1975, pp. 67-76. This article describes a method of psychoeducational assessment consisting of the use of traditional testing tools by the psychologist in conjunction with the use of systematic behavioral observation by the psychologist, classroom teacher, and teacher aides. This cooperative effort yields a composite picture of the learner's competencies and capacities, and can result in prescriptive educational strategies—curricular and teaching modifications the teacher can implement.

## Blindness History

**The Unseen Minority; A Social History of Blindness in the United States**, by

Frances A. Koestler. David McKay Company, Inc. (750 Third Avenue, New York, New York 10017), 1976, 559p. \$14.95. Publication commissioned by the American Foundation for the Blind, Inc. A full-length review will appear in a future issue of the *New Outlook*.

## Causes of Blindness

**Blindness and Disorders of the Eye**, prepared in conjunction with Dr. Leo J. Plummer. *The Braille Monitor* (National Federation of the Blind, 2652 Shasta Road, Berkeley, California 94708), March 1976, pp. 153-177. Article directed to the general public and members of the National Federation of the Blind. It is divided into four sections: the normal eye and its function, eye defects and causes of blindness in the United States (descriptions in alphabetical order), the role of the National Federation of the Blind, and a glossary of terms pertaining to the eye and vision, eye conditions, and the vision examination.

## Deaf-Blind

**Curricula for the Deaf-Blind; An Annotated Bibliography of Curriculum Development Materials Relevant to the Education of Deaf-Blind Children**. Mid-Atlantic North and Caribbean Regional Center for Services to Deaf-Blind Children (999 Pelham Parkway, Bronx, New York 10469), 1975, 68p. Includes curriculum guides in the areas of deaf-blind, deaf, blind, retarded, multiply handicapped, and orthopedically handicapped. In each annotation, four elements are analyzed: components of the guide, such as objectives, activities, materials, and evaluation methods; developmental areas covered; development level for which intended; and level of trained personnel for which intended. In addition, the bibliography contains a classified index with the categories: self-help skills, social and emotional-

recreational skills, gross and fine motor, mobility skills; percept-concept development; communication; prevocational skills; developmental levels.

**Understanding the Deaf/Blind Child**, by Peggy Freeman. Heinemann Health Books (23 Bedford Square, London WC1B 3HT, England), 1975, 126p. £1.25. The author, mother of a deaf-blind daughter, devotes the major portion of the book to tracing the stages of sensory, motor, emotional, social, and communication development from infancy through preschool. Methods for enhancing this development are suggested. An additional section concerns early play experiences and formal and informal programs for pre-reading, pre-writing, and pre-number activities.

## Education

**Reduction of Rocking Mannerisms in Two Blind Children**, by Anthony P. Caetano and James M. Kauffman. *Education of the Visually Handicapped* (see address above), Vol. 7, No. 4, December 1975, pp. 101-105. Study designed to develop an effective treatment procedure for the elimination of the self-stimulatory behavior of rocking in blind children. A tactual monitoring cue (gentle shoulder tap), verbal reminders, and points redeemable for prizes were successfully employed to curb the rocking behavior and reinforce correct posture in the study's subjects, two legally blind third grade girls.

**Using LEA to Teach Blind Children to Read**, by Rebecca Gavurin Curry. *The Reading Teacher* (International Reading Association, Newark, Delaware 19711), Vol. 29, No. 3, December 1975, pp. 272-279. The author advocates the language experience approach (LEA) in lieu of basal readers for teaching braille reading. Using

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this method, the teacher supplies each student with a braille "word bank" of words and stories drawn from his own descriptions and perceptions; these words, meaningful to the child, theoretically will provide the incentive to learn to read braille. Supplemental materials and activities related to the braille and braille contractions are listed, and a model classroom layout, including library, activity centers, and desk areas, is illustrated and described.

**When It's Hard to See**, by Susan C. Farkas. Prince George's County Public Schools, Vision Program (Capitol Heights Special Center, 6037 Central Avenue, Capitol Heights, Maryland 20027), 1975, unpagged. Intended for sighted elementary school students, this booklet provides an introduction to visual impairment. Brief texts in large type, coupled with photographs on facing pages, depict blind and partially sighted children in school and at play. Their limitations, as well as similarities to their sighted peers, are described.

## Low Vision

**Instructional Manual for Visual Skills**, compiled by Alice Wood. Western Blind Rehabilitation Center (Veterans Administration Hospital, 3801 Miranda Avenue, Palo Alto, California 94304), 1975, 151p. Free. Intended for new low vision specialists at the Western Blind Rehabilitation Center, Veterans Administration Hospital, Palo Alto, California, the manual indicates procedures for testing, prescribing for, and training the low vision client. The manual is divided into two major sections: (1) aids—illustrations and descriptions including powers, acuity, use, price, source, additional features, and (2) perceptual training (section contributed by Carol Krauss Walker)—lessons devoted to training clients in optimal use of residual vision, with emphasis on peripheral vision, color discrimination, form discrimination, coordination of visual and tactual skills, scanning techniques, depth perception, spatial perception, figure-ground discrimination, and improvement of reading skills.

## Low Vision Aids

**A Preliminary Report on Experienced Closed-Circuit Television Users**, by G. G. Goodrich, L. E. Apple, A. Frost, A. Wood, R. Ward, and N. Darling. *American Journal of Optometry & Physiological Optometry* (Professional Press, Inc., 101 East Ontario Street, Chicago, Illinois 60611), Vol. 53, No. 1, January 1976, pp. 7-15. The article addresses itself to the questions: (1) What percentage of the low vision population can benefit from CCTV? (2) How does performance with CCTV compare to that with optical aids? (3) Is the benefit derived equal to the cost of the system? Results of previous studies are cited. The present study involved twenty-six veterans who had been trained and then loaned CCTV's by the Veterans Administration. Data obtained from each subject included reading speed, reading duration, amount of time CCTV was used each day and week, the veteran's and his family's opinion of the device, and the types of tasks for which the CCTV was used.

## Orientation & Mobility

**Realistic Orientation and Mobility for the Elderly Blind Person**, by William E. Allen, Anne A. Griffith and Martin S. Yablonski. *The Long Cane News* (Western Michigan University, Department of Blind Rehabilitation, Kalamazoo, Michigan 49001), Vol. 9, No. 1, January 1976, pp. 12-15. The authors describe the orientation and mobility component of the rehabilitation programs at New York City's New York Infirmary/Center for Independent Living, a comprehensive rehabilitation center for legally blind individuals fifty-five years of age or older. Individualized mobility programs are structured around student-stated needs and goals, and the student's responsibility in achieving these goals and regaining independence is stressed. The Center uses a multidisciplinary approach, involving instructors in orientation and mobility, sensory development, and body movement, as well as medical, psychological, and social work personnel.

## Personal Management

**Home Economics Guide for Visually Handicapped Students; A Five County Vocational Skills Training Program for the Blind**, by Constance H. Rahn. Santa Cruz County Office of Education (City of Santa Cruz, California 95060), 1972, 183p. Curriculum guide designed to aid vocational education instructors, teachers of the visually handicapped, and visually handicapped students. The guide is comprised of four main sections: food, grooming, home management and child care, and sewing. Each section begins with an orientation (a description, safety concerns, adaptations, maintenance) to the equipment and appliances used, and then lists, in alphabetical order, techniques and activities. Copies are available from: ERIC Document Reproduction Service, P.O. Box 190, Arlington, Virginia 22210 (Document #ED 073 578, \$6.58).

## Preschool Child

**The Development of Human Attachments in Infants Blind from Birth**, by Selma Fraiberg. *Merrill-Balmer Quarterly of Behavior and Development* (The Merrill-Palmer Institute, 71 East Ferry Avenue, Detroit, Michigan 48202), Vol. 21, No. 4, October 1975, pp. 315-334. The author, who is affiliated with the Child Development Project at the University of Michigan, describes characteristics of attachment behavior based upon a longitudinal study of ten infants blind from birth. The data, encompassing the first two years of life, cover smiling, discriminating tactile behaviors, stranger avoidance and distress, and separation and reunion behaviors. A comparison is drawn between the sequential development of these behaviors in blind and in sighted children. Requests for reprints should be addressed to Selma Fraiberg, Child Development Project, 201 East Catherine Street, Ann Arbor, Michigan 48108.

## Recreation

**Action In and On the Court. Performance** (The President's Committee on Employment of the Handicapped, Washington, D.C. 20210), Vol. 26, No. 8, February 1976,

pp. 16-19. Case of basketball player Mike Borden of Ohio University. He was disqualified by the team physician from further junior varsity (and, therefore, varsity) competition on the basis of his having only one eye (and one glass eye). Intervention by American Civil Liberties Union has resulted in a suit in which the judge has granted a temporary injunction allowing Mike to resume play pending further court proceedings.

# Editors' Choice

## The Face on the Postage Stamp

By Marcia Hayes

Any man who makes a major stamp on life has a pretty good chance of turning up—after death—on a U.S. postage stamp. One hundred and sixty-five male faces have been featured on U.S. stamps since the first in 1847.

But, sadly, only 39 women have been individually recognized on stamps in the past 128 years, and 13 of this number are idealized or mythical representations of their sex, such as Lady Liberty and her sisters, Freedom and Justice, Victory, Commerce, Peace, and one anonymous Indian maiden.

The first of the 26 real women to get pasted on American letters was a foreigner: Queen Isabella of Spain. Martha Washington and Eleanor Roosevelt are the only Presidents' wives to win adhesive immortality. American Revolutionary women have three representatives: Betsy Ross, Molly Pitcher and Sybil Ludington.

Except for Lady Liberty, the only woman to achieve airmail status is Amelia Earhart. Other women commemorated on stamps are Virginia Dare and Pocahontas; such early feminists as Susan B. Anthony, Elizabeth Cady Stanton, Carrie Chapman Catt, Lucretia Mott and Lucy Stone (Blackwell); Elizabeth Blackwell, first American woman physician; three women writers—Louisa May Alcott, Willa Cather and Emily Dickinson; Juliette Gordon Low, founder of the Girl Scouts of America and Moina Michael, who's credited with creating the memorial poppy.

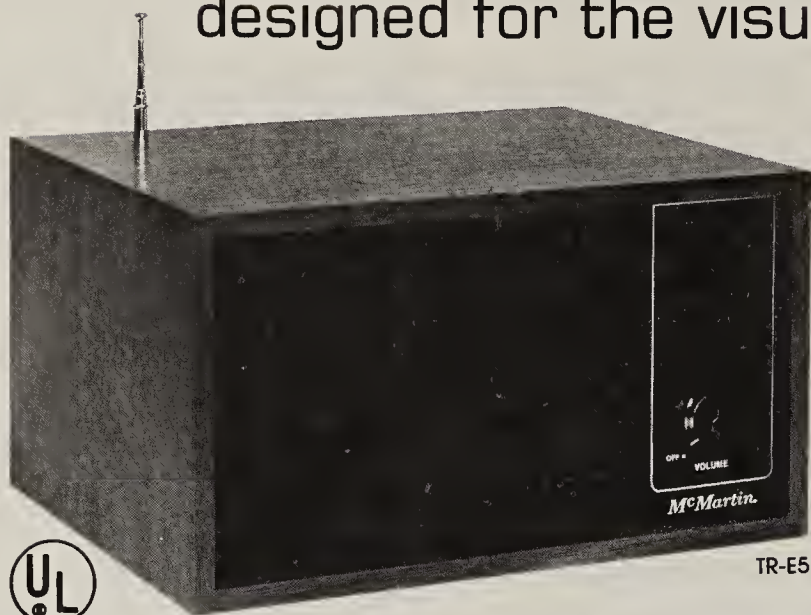
It's not a long list, and it's not really representative of the varied accomplishments of American women. One might wonder, for instance, why someone like Dr. Ephraim McDowell deserves a four-cent stamp for performing the first successful ovarian operation in the U.S. while a nurse like birth-control pioneer Margaret Sanger doesn't even rate a cent.

If you'd like to see some women of accomplishment commemorated on a stamp, you can send your suggestion to: *Citizen's Stamp Advisory Committee, c/o the U.S. Postal Service, Washington, D.C. 20260.*

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# Publications of Note

A classified listing of books, articles, directories, pamphlets, and other material of interest to the readers of the New Outlook for the Blind, prepared by the editors. Please write to the source listed in each entry if copies or more information is desired; the materials are not available from the New Outlook or the American Foundation for the Blind.

## Agency Administration

**Training Board Members for Health Planning Agencies.** *Public Health Reports* (Tearsheet requests to Dr. Ann Lennarson Greer, Department of Urban Affairs, University of Wisconsin, Milwaukee, Wisconsin 53201), January 1976, Vol. 91, No. 1, pp. 56-61. This article sets forth objectives and conditions to be considered in training administrators. Major problems and potential solutions are also discussed.

**How to Run a Meeting,** by Antony Jay. *Harvard Business Review* (Reprint Services, Harvard Business Review, Boston, Mass. 02163), March-April 1976, Vol. 54, No. 2, pp. 43-57. This article offers guidelines (with humorous illustrations) on how to right things that go wrong in meetings. The discussion covers the functions of a meeting, the size and types of meetings, ways to define objectives, the chairperson's role, and how to conduct a meeting that will meet its objectives.

**Collegial Administration as a Model for Social Agencies,** by Jack R. Parsons. *Social Casework* (44 E. 23rd Street, New York, N.Y. 10010), February 1976, Vol. 57, No. 2, pp. 104-110. The author postulates that using such models for management as the "collegial administration model" in social agencies represents a move away from non-democratic, regimented systems toward a more humane, person-oriented system that can more effectively serve the clients' needs.

## Aging

**A Network of Help for England's Elderly,** by Michael J. Austin. *Social Work* (2 Park Avenue, New York, N.Y. 10016), March 1976, Vol. 21, No. 2, pp. 114-119. The article compares services to the elderly in the United States and England. According to the author, in England services to the aged are more comprehensive and better developed. In that country health care and social services are intermeshed, providing easier access to a variety of services.

## Audition

**Auditory Localisation Using Hearing Aids,** by A. D. Heyes and A. J. Ferris. *British Journal of Audiology* (Royal National Institute for the Deaf, 105 Gower Street, London WC1E 6AH, England), 1975, Vol. 9, pp. 102-106. A comparison is made between

the auditory localization ability of deaf subjects using chest mounted and post-aural hearing aids. The binaural post-aural aid proved to be the best. The single chest mounted aid was insufficient for those users, blind persons for instance, who depend on accurate sound localization.

## Audio-Visual Materials

**Grooming for Men.** Developed by Alabama Rehabilitation Media Service. (Distributed by Materials Development Center, Information Service, Stout Vocational Rehabilitation Institute, University of Wisconsin-Stout, Menomonie, Wisconsin 54751), filmstrip with audio cassette and transcript. Five day rental: \$8.00; purchase: \$16.00. Emphasizes the importance of good grooming and hygiene for obtaining employment and making friends. Covers such areas as showering, shaving, and selection and upkeep of clothing.

## Education

**Visual Training for Auditory-Dominant and Visual-Dominant Patients,** by Doralee McGraw Lewis. *Optometric Weekly*, (The Professional Press, 101 E. Ontario Street, 6th floor, Chicago, Illinois 60611), March 18, 1976, Vol. 67, No. 12, pp. 46-48. This article describes techniques and procedures used in a visual training program for children which utilizes their dominant learning channel—visual or auditory.

**Mainstreaming: Yes,** by Gail Ensher; "Mainstreaming: No" by James Wenschel; and "Mainstreaming: Does it Matter?" by Burton Blatt. *The Exceptional Parent* (Psy-Ed Corporation, 262 Beacon Street, Boston, Massachusetts 02116), February 1976, Vol. 6, No. 1, pp. 6-12. A three part discussion states positions on mainstreaming in education for children with disabilities or special needs. The expectation expressed is that parents and educators exercise temperance and willingness to compromise.

## Orientation and Mobility

**Evaluation of Man-Machine Systems in the Mobility of the Visually Handicapped,** by J. D. Armstrong. In *Human Factors in Health Care*, edited by Ronald M. Pickett and Thomas J. Triggs. Lexington Books (D.C. Heath and Company, Lexington, Mass.), [1975]. This article is concerned with measuring the change in mobility performance that occurs when visually handicapped persons are provided with special aids. With the use of video recordings performances were measured in the terms of safety, efficiency, and psychological stress.

## Research

**Use of Children in Research: The Problem of Informed Consent,** by Lucy Ferguson. *Behavior Today* (Plus Publications, 2814 Pennsylvania Avenue, N.W., Washington, D.C. 20007), March 22, 1976, Vol. 7, No. 12, pp. 4-5. A brief article on the division of children used in research into four age groups in order to determine different approaches needed to protect their rights and to provide them with constructive experiences.

# News in Brief

■ *The Sight-Saving Review*, published quarterly by the National Society for the Prevention of Blindness, now welcomes the submission of manuscripts dealing with current progress in the prevention of blindness. Of special interest are articles dealing with advances in research and treatment; new drugs; safety legislation; genetic and nutritional counseling for eye health; and prevention of blindness programs. Manuscripts should be six to 18 pages and submitted in duplicate to: Joe Kerstein, Editor-in-Chief, Sight-Saving Review, 79 Madison Ave., New York 10016.

■ Media Projects for the Blind has announced that it will shortly begin publication of a braille magazine for women. The magazine will focus on current women's issues and activities, and also provide selections from current women's literature. The subscription rate will be \$4.00 per year. For a sample issue write to: Media Projects for the Blind, c/o Lynne Koral, 60 East 12th St., New York 10003.

■ The National Braille Association's *Handbook for Braille Music Transcribers*, which is geared to provide assistance to transcribers at an advanced level, is available free of charge to certified music brailists from the Library of Congress, 1291 Taylor St., N.W., Washington, D.C. 20542.

■ "Snuffy," a slip-on, automatic cigarette extinguisher, has been developed by ARTALS, Ltd. (P.O. Box 15474, Tampa, Florida 33684). Snuffy can prevent fires and cigarette burns caused by falling asleep with a lighted cigarette. It also stops the smoker from smoking the last inch of the cigarette, which has the most tar and nicotine. Snuffy is \$1.30 for a package of two, and comes in regular and slim sizes.

■ A limited number of the February *Long Cane News* is available. This issue contains articles on the laser cane, orientation and mobility for the elderly blind, night vision aids, and dog guides. The publication is free of charge, but 45¢ is requested for postage and handling. Write to: *Long Cane News*, c/o Kent Tyler Wardell, 2454 Salem Place, Fullerton, Ca. 92635.

■ The General Telephone Company of Robinson, Illinois has developed a special business telephone hook-up for visually handicapped secretaries and receptionists. With this system a small piece of metal is placed above each extension light. When the phone rings the appropriate metal attachment vibrates, signifying which line the call is coming in on. The experimental equipment was designed by John Love of the General Telephone Company and is currently being tested at Lincoln Trail College, Robinson, by a visually handicapped student, Shirley Davis.

■ The Orientation and Mobility Association of Oregon was formed February 21, 1976 during a meeting at the Oregon Rehabilitation Center for the Blind, Salem, Oregon. At the first meeting Sandy Kronick



was elected group coordinator and Linda McKinley, secretary-treasurer. The mailing address of the new mobility group is c/o ORCB, 700 Church Street, S.E., Salem, Oregon 97310.

■ A new company, Wormald International Sensory Aids Ltd. (211 Maces Road, P.O. Box 19-670, Christchurch, New Zealand) has replaced the Sensory Aids Division of Wormald Vigilant Ltd. The new company will be responsible for the manufacturing and marketing of the Sonicguide and other sensory aids equipment. In the United States, Telesensory Systems, Palo Alto, California, will continue to handle the marketing, servicing, and distribution of the Sonicguide.

■ The National Federation of the Blind (NFB), with the cooperation of the National Endowment for the Humanities, has made available a recorded version of the American Issues Forum Calendar, "Our 200 Years: Traditions and Renewal." The calendar identifies approaches to nine fundamental issues in modern American society, and offers a schedule for their discussion during the bicentennial year. Single copies of the record may be ordered from regional libraries for the blind and physically handicapped or from NFB, 524 4th Street, Des Moines, Iowa 50309.

■ "Reach to Recovery," the American Cancer Society's pamphlet for women who have had breast surgery, is now available in braille form from the Jewish Guild for the Blind (15 W. 65th Street, New York, N.Y. 10023). The pamphlet provides practical advice on wardrobe, exercises, and hand and arm care.

■ *Expectations 1975*, the annual braille anthology of current children's literature, is available free of charge to blind children from the Braille Institute of America, 741 N. Vermont Avenue, Los Angeles, California 90029. In addition to selected stories by noted writers of children's books, there is a section containing poems and stories written by blind children.

■ The Special Education Unit of the University of Louisville, Kentucky, has announced that beginning with the Fall 1976 semester it will conduct a teacher certification training program in the area of "Visually Handicapped" at both the graduate and undergraduate levels. For more information, contact Dr. Edward Berla, Coordinator of Vision Impairment Program, Special Education unit, University of Louisville, Louisville, Ky. 40208.

## APPOINTMENTS

■ National Advisory Council for Career Education: **Bruce Shertzer**, chairman; **Nora Bennett**; **Thelma Daly**; and **Charles Heatherly**.

■ U.S. Office of Education, Bureau of Education for the Handicapped: **Robert Herman**, associate deputy commissioner; and **Gary McDaniels**, chief of the Division of Innovation and Development.

■ Library of Congress: **Susan H. Vita**, CIP program manager.

■ Arkansas Enterprises for the Blind: **Jim Cordell**, assistant executive director.

## COMING EVENTS

### June

**13-28** XIII World Rehabilitation Council, Tel Aviv, Israel.

**22-26** American Optometric Association, 79th Congress, Las Vegas.

**22-26** Alexander Graham Bell Association for the Deaf, Biennial Convention, Boston.

**26-July 1** American Medical Association, Annual Convention, Dallas.

**27-July 2** American Physical Therapy Association, New Orleans, La.

**28-July 2** American Home Economics Association, Annual Meeting, Minneapolis, Minn.

### July

**5-9** National Federation of the Blind, Los Angeles.

**5-10** American Council of the Blind, Hot Springs, Ark.

**5-9** Association for the Education of the Visually Handicapped, Louisville, Ky.

**5-9** National Association of the Deaf, 33rd Biennial Convention, Houston, Texas.

**11-12** Affiliated Leadership League of and for the Blind of America, Constitutional Convention, Little Rock, Ark.

**12-16** Second World Congress of Guide Dog Training Organizations, London.

**20-22** Mid-America Conference of Rehabilitation Teachers, Biennial Conference, New Orleans.

### August

**3-11** Olympics for the Blind, Toronto.

**22-27** International Association for the Scientific Study of Mental Deficiency, 4th International Congress, Washington, D.C.

**29-Sept. 3** International Committee for Education of the Deaf-Blind, Sixth International Deaf-Blind Seminar, Sydney, Australia.

### October

**6-10** American Academy of Ophthalmology and Otolaryngology, Las Vegas.

**11-15** American Occupational Therapy Association, Annual Meeting, San Francisco.

**15** White Cane Day.

**17-21** American Public Health Association, 104th Annual Meeting, Miami.

**17-22** National Recreation and Park Association, Boston, Mass.

**19-22** National Association for Retarded Citizens, Annual Convention, Indianapolis.

**27-30** National Rehabilitation Association, Annual Conference, Hollywood, Fla.

**27-30** Western Regional Conference of the American Association of Workers for the Blind, Tucson, Arizona.

**28-31** International Congress of Sexology, Montreal.

### November

**7-11** The Society for Neuroscience, 6th Annual Meeting, Toronto.

**17** National Accreditation council for Agencies serving the Blind and Visually Handicapped, Annual Membership Meeting, New York.

**19-23** American Speech and Hearing Association, Annual Convention, Houston.

### December

**4-8** American Medical Association, Clinical Convention, Philadelphia.

**American Association of Workers for the Blind, Regional Meetings:**

**Southwestern**—July 19-20, Baton Rouge.

**Southeastern**—July 25-28, Jackson, Miss.

**Midwestern**—July 28-30, Indianapolis.

**Mid-Atlantic**—September 29-October 1, New York.

**New England**—October 6-8, Portland, Me.

**Western**—October 27-30, Tucson, Az.

## Classified Listings

*Retes: Non-display—\$2.00 per line (minimum: \$10.00); Display \$13.00 per column inch (minimum: one inch). Anonymous, box-numbered eds are only accepted for personnel listings. Advertising is subject to editorial approval. A rate and information card is available on request. All correspondence should be directed to the Classified Advertising Department, New Outlook for the Blind, 15 West 16th Street, New York, N.Y. 10011.*

### AIDS AND APPLIANCES

Map kits and Handbook—For details contact: Dr. G. A. James, Blind Mobility Research Unit, Department of Psychology, University of Nottingham, Nottingham NG7 2RD, United Kingdom.

New Talking Electronic Calculator—the SPEECH PLUS™ from TSI is now available. Verifies all keystrokes and answers with 24 words from earphone or self-contained speaker. It is hand-held, rechargeable, and functions include percent, square root, memory, and automatic constant for easy 1/x and x2 calculations. #395.00 from either AFB or TSI. For more information contact: Telesensory Systems, Inc., 1889 Page Mill Road, Palo Alto, California 94304, (415) 49302626.

### PERSONNEL

#### Situations Available

Two Orientation and Mobility Specialists to work with our present Specialist; caseload would be with a diversified group of students, elementary level through secondary. Must have background with student teaching in regular education for the sighted as well as Orientation and Mobility training. Positions open and can be filled immediately. Contact: Mr. Kenneth Hitzke, Staffing Specialist, Staff Services Department, Milwaukee Public Schools, P.O. Drawer 10K, Milwaukee, Wisconsin 53201.

Executive Director: The Center for the Sightless, Inc., serving all of Lorain County, Ohio, through its Vision Center (social and rehabilitative services) and Skills Division (sheltered workshop) needs an active and creative director capable of furthering its progress in service to visually impaired. Salary: \$15-19,000. Contact: Personnel Committee, 220 Oberlin Road, Elyria, Ohio 44035.

Two Orientation and Mobility Specialists (one master's level and one undergraduate level) to join present master's level instructor in serving older blind persons in non-residential personal adjustment training program. Salary negotiable. Contact: Vernon Metcalf, executive director, Florida Association of Workers for the Blind, 601 S.W. 8th Ave., Miami, Florida 33130.

# MEASURES OF PSYCHOLOGICAL, VOCATIONAL, & EDUCATIONAL FUNCTIONING IN THE BLIND & VISUALLY HANDICAPPED

**Geraldine Scholl**  
**Ronald Schnur**

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**Geraldine Scholl, Ph.D.** is professor  
of education in the School of Education,  
Program of Special Education,  
The University of Michigan, Ann Arbor.

**Ronald Schnur, M.A.** is a doctoral candidate  
in the Combined Program in Education and  
Psychology at the University of Michigan.

As an increasing number of visually impaired children enter  
regular educational programs and visually impaired adults  
seek the services of a wide variety of social agencies,

many psychologists,  
teachers, and  
other professionals  
are being asked  
to deal with the

needs of blind persons for the first time. **MEASURES OF  
PSYCHOLOGICAL, VOCATIONAL, & EDUCATIONAL  
FUNCTIONING IN THE BLIND & VISUALLY HANDICAPPED**  
by Geraldine Scholl and Ronald Schnur was developed to  
serve as a resource, particularly for those who have never  
before evaluated a blind person, and to provide general  
information and guidelines on how to go about using the  
measures, with some discussion of alternative approaches to  
assessment when existing measures may be inadequate.

The primary purpose of this book, however, is to offer  
a listing of assessment measures that have been used in the  
past or are currently being employed to test visually impaired  
persons. Listings include, whenever possible, a brief description  
of the measure, the source from which it is available, and  
book and journal references describing previous work with the  
test. In instances where there is no published material for  
a particular measure, the authors have provided the name and  
address of their own correspondent who has been working  
with the test. There is also a section of general references  
and a list of selected reading.

Users of the manual can determine which of those measures  
with which they are already familiar have been adapted for use  
with the blind or they can choose  
new instruments that

seem appropriate to their  
needs. Researchers may  
wish to experiment with  
little used tests that  
may prove valuable once  
more data on them is  
available.



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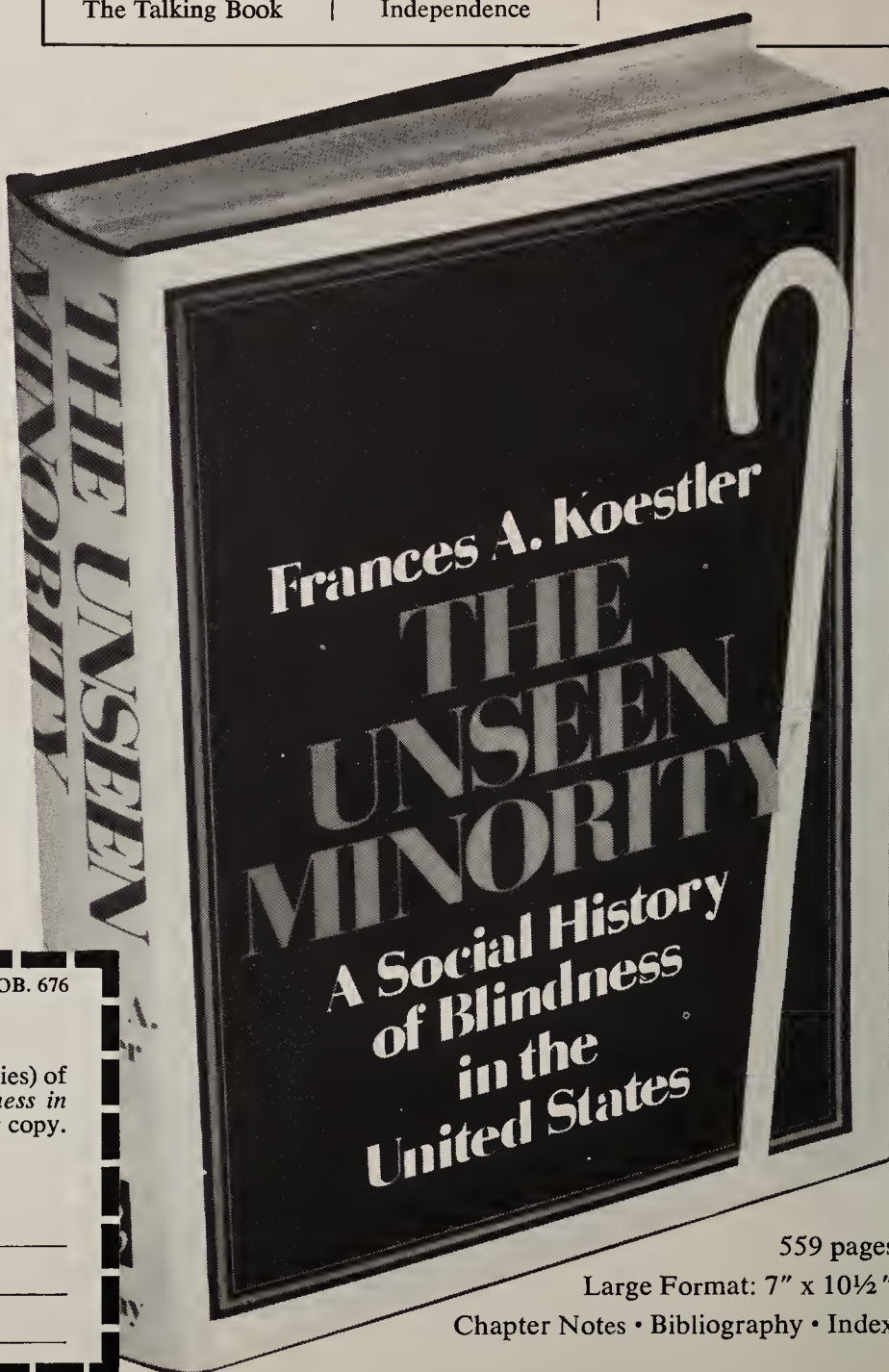
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# THE NEW FOR THE BLIND

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Drama: A Means of Self-Expression for the Visually Impaired Child





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# Piaget's Theory and the Visually Handicapped Learner

**ROSE-MARIE SWALLOW, ED.D.**

*Dr. Swallow is associate professor of education at California State University in Los Angeles.*

**Abstract:** *Research based on the writings of Piaget indicates that the cognitive functioning of the visually impaired child is slower to develop than that of his sighted counterpart. In addition, there may be a developmental gap between the operative and figurative aspects of his thought as well as difficulties in image formation. The author reviews current literature and presents basic educational tenets based upon interpretations of Piaget's work and research findings. She emphasizes the blind child's need of direct physical experiences with concrete objects and verbal interaction with both adults and members of his peer group to learn about the world around him.*

**Note:** *This article is based on a paper presented at the Sixth International Interdisciplinary Seminar on the Piagetian Theory and Its Implications for the Helping Professions, January 30, 1976, at the University of Southern California, Los Angeles.*

The works of Jean Piaget and his collaborators offer to Special Education a frame of reference for understanding the behavioral manifestations of cognitive functioning. Studies of thinking help us to recognize the intellectual potential of visually handicapped children and to analyze the structures and processes of preoperational and operational thought. (An operation is defined as "an action capable of occurring internally and of which, according to Piaget, the essential characteristic is reversibility" [Inhelder, 1966, p. 302].) Thus we hope to be able to differentiate more easily between intellectual potential and certain deficiencies in symbolic imagery. Piagetian research on the blind child seems to indicate that the blind child suffers a developmental lag: that is, a slowdown in the speed of development through the different stages. Likewise, a developmental gap may exist between the operative and figurative aspects of thought. Knowledge of these developmental lags and cognitive gaps as well as the visually handicapped child's difficulties in image formation may lead us to a better understanding of the specific deficiencies in symbolic reasoning apparent in many blind children. This atypical developmental pattern may, however, be normal development for this group of exceptional children.

The visually handicapped child, and particularly the child who is totally blind, has special needs as he progresses through cognitive stages of intellectual development. The objectives of this paper are, therefore, to review current literature in relationship to Piaget and the visually handicapped child and to deduce basic educational tenets based upon interpretations of Piaget's writings and research findings. This exercise should broaden our approach to and awareness of the kinds of curricula needed to help the cognitive development of visually handicapped learners.

**PIAGETIAN LITERATURE** Although there is a vast literature on the writings of Piaget, he himself has been relatively unconcerned with pedagogical issues. What we have witnessed under the rubric of education has been a proliferation of books on how to develop a cognitive curriculum—in the main a set of lesson plans that are essentially the experiments Piaget has employed to test the products of the process. Most contain the classic balls of clay for conservation, graduated sticks or straws for seriation, circles and squares varied in color and size for classification, and a set of poker chips for one-to-one correspondence. I myself possess a whole shelf of booklets containing the same learning activities.

As a special educator, I have adapted and, when necessary, modified these or similar sets of so-called "learning tasks" for the visually handicapped child. However, I have also questioned the extent to which these tasks are learning activities. Do they not actually serve to determine whether or not the child already has the operation? When the child can spontaneously sort blue and yellow (or smooth and rough), large and small, the circles and squares by color (or texture), shape and size, we know that he can classify specific objects according to three variables. And what about the child who cannot perform the task? Are we only to keep repeating the same or similar activities? Are we only to keep presenting simpler sequential tasks? Do our programs result in teaching specific skills with little or no relationship to cognitive development? We must avoid a curriculum based upon training isolated product skills with limited operational knowledge of the processes of cognitive development.



**Period**

**Example**

**Phase**

**Fortuitous realism**



Named scribbling: the child discovers what he knows in the act of doing it.

**Failed realism**



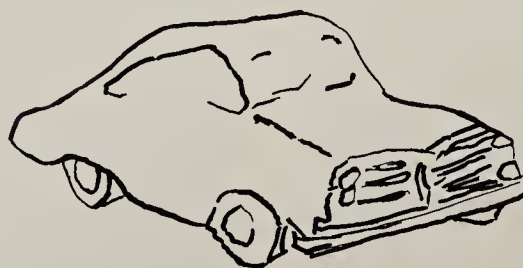
Synthetic incapacity: elements are next to each other instead of coordinated, e.g., hat and buttons alongside "tadpole man."

**Intellectual realism**



Conceptual attributes are drawn without concern for visual perception.

**Visual realism**



a) Drawing now represents what is visible from the child's perspective, with objects becoming larger and smaller according to proportion.  
b) Objects arranged according to their geometrical properties (8-9 years of age).

**Figure 1. Evolution of drawings.**

Piaget has not been directly involved in clinical experimentation with visually handicapped children. Rather, a group of researchers has investigated—sometimes very poorly—the cognitive development of blind and partially seeing children. The first problem that occurs to a few of them, usually those possessing limited knowledge both of Piaget and of the visually impaired child, is what to do about residual vision. (Comparatively few visually handicapped children are totally blind.) One solution has been to blindfold the children with remaining vision. However, this is not a valid testing method in that it is asking subjects to perform the tasks without a sense with which they normally operate. On the other hand, the data analysis must in some way account for the degree of remaining vision. A second pitfall in research with the blind is to compare them with a “matched” group of sighted subjects who are sometimes blindfolded. Given our present knowledge concerning the figurative aspects of cognitive functioning, how can we claim that these comparisons are valid?

**RESEARCH RESULTS** Research results generally indicate that the blind child displays some developmental lag or symbolic gap. Often the recommendations for education to remedy these gaps offer little more than was known when Valentin Hüy began his first school for the blind in Paris in 1784. Thus even today much of the research utilizing Piagetian tasks offers little useful information to the classroom teacher. Education must develop its own methods and strategies based upon relevant research findings concerning cognitive development and sound psychological principles of learning.

Miller (1969) studied 26 visually impaired youngsters, ages six to ten, on conservation tasks using balls of clay and beakers of water. After blindfolding every subject “to control the amount of visual impairment,” he found that an increase in the ability to conserve was a function of age although partially sighted subjects performed significantly better than the totally blind. His findings support the proposition that visual intactness is an important determinant in the development of reasoning, suggesting the “. . . importance of visual interaction with the environment as a factor in conservation” (p. 104).

Similar findings were reported by Tobin (1972), who explored the problem of developmental lag in 189 visually handicapped children, ages five to 17, using two balls of clay. Among the 117 subjects who were classified as conservers the following responses resulted: a) Plus/Minus (e.g., None added or taken away) 29 percent, b) Reversability (e.g., “They were the same before”) 52 percent, c) Co-ordination of Relations (e.g., “The sausage is longer but thinner”) 8 percent, d) Shape (e.g., “It has only been changed in shape”) 8 percent, e) Identical Action (e.g., “The ball would be the same if rolled out”) 3 percent, f) Weight (e.g., “It would still weigh the same”) 1 percent. “The youngest subject giving an explanation in categories (c) to (f) inclusive, was seven years, ten months” (Tobin, 1972, p. 196). In another study, Cromer (1973) found no significant differences between blind and sighted conservers in the use of dimension reasons (c) to (f). However, 93 percent of the non-conservers (blind and sighted) used dimensions to support their erroneous prelogical reasoning. All mentioned only one dimension (“because it’s high,” “because it’s thin,” etc.). Language used by the blind did not differ from that used by the sighted in these conservation tasks. Cromer also found that changes in cognition often preceded changes in language.

Tobin (1972) asks how developmental lag relates to restrictions in the visually handicapped child’s learning experiences and interactions with his environment and whether differences are traceable to the nature and complexity of the stimulation received. Gottesman (1973) supports the theory that the same developmental patterns that exist for sighted children exist for the blind, but that the rate of development is slower for blind children. Hatwell (1966) observed two- to three-year differences in performance of conservation of mass tasks between groups of blind and sighted children.

For methodological reasons Cromer (1973) was not satisfied with Hatwell’s original research. His own research revealed no differences among his 36 five- to nine-year-olds (blind, sighted, and sighted but blindfolded) regarding the age of attainment of conservation although the manner by which the blind children processed the environment differed from the blindfolded sighted children. He did suggest that “. . . the achievement of full conservation might be delayed for the blind due to impoverished perceptual schemes” (p. 249).

**STAGES OF COGNITIVE DEVELOPMENT** At this stage of the argument, certain clarifications may sharpen our interpretations of research findings. Basically, the mental development of the child appears to consist of four stages: sensorimotor (0–24 months), preoperational (2–7 years), concrete operations (7–11 years), and formal operations (11 years and upward). Each of these stages extends the one preceding it, reconstructs it on a new level, and finally surpasses it (Piaget & Inhelder, 1969). The order of succession is characterized by thinking patterns that can be observed. Each stage has distinct characteristics of thinking. The problem is to understand the underlying mechanism.

### Maturation

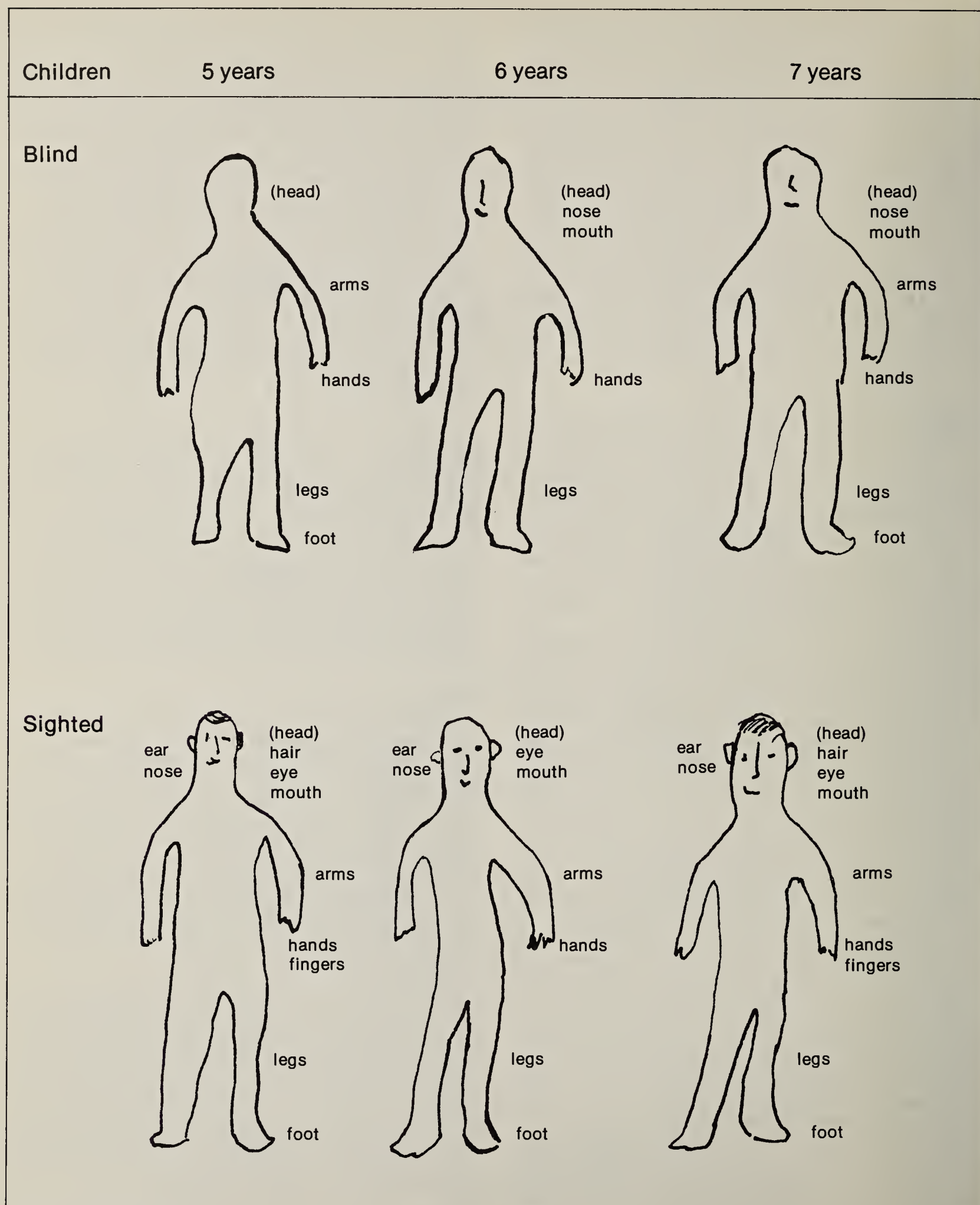
According to Piaget, four general factors are associated with mental development: 1) maturation, 2) learning, 3) social education, and 4) equilibration (Inhelder & Piaget, 1964). Maturation is concerned with growth, particularly physical growth and the maturation of the central nervous system. It plays a role throughout mental development and is dependent upon action and experience: certain behaviors therefore depend upon the functioning of specific structures. For example, the coordination of vision and grasping occurs at approximately four and one-half months. The blind infant does not coordinate the actions of sound and grasping until approximately six months later, at around 10 to 11 months of age (Fraiberg, Smith, & Adelson, 1969).

Typically, for the first six months the blind infant tends to maintain his hands tightly fisted at shoulder height in the neonatal posture, a position in which they are least likely to encounter each other or to find objects. Typically too, there is no finger play at midline. The sustained mutual fingering normally found in the sighted baby at 16 weeks requires vision for its practice and pleasurable repetition. In the absence of vision as an “organizer” for midline engagement of the hands, and without help from the parents, the totally blind infant’s hands may not unite at midline at all, and the maturational sequence that leads to coordinate use of the hands and reciprocity between the hands can be impeded (p. 134).

### Learning

Learning, the second factor of mental development, is essentially the role of experience, of concepts derived from the actions performed upon objects. Piaget theorizes two types of learning experiences: 1) physical experience, which





**Figure 2. Body concept.**

NOTE: This figure is based upon spontaneous priority responses: that is, those body parts which were mentioned by 50 percent or more of the children within each of the six groups (blind 5, 6, and 7 years and sighted 5, 6 and 7 years). In all groups the head was given as the lead so it is included in parentheses and is not to be considered a priority response.

consists of acting upon objects in order to abstract their properties, and 2) logical-mathematical experience, which consists of acting upon objects in order to learn the resulting actions. "Logical-mathematical concepts presuppose a set of operations that are abstracted not from the objects perceived but from the actions performed on these objects, which is by no means the same" (Piaget & Inhelder, 1969, p. 49). Learning, both physical and logical-mathematical, can be seriously delayed if there is no intervention early in the blind child's sensorimotor period.

Studies (Fraiberg *et al*, 1966, 1969) have shown that an appropriately stimulated blind baby will at five months of age grasp objects upon contact, make fleeting pursuit movements, and explore a table surface. On the other hand, a normal blind baby who has been grossly deprived of early tactile stimulation and grasping experiences has hands that are weak and awkward and fingers that are not useful for tactile exploration.

Hands need to be developed and fingers extended in order to support the body in crawling. There is a marked delay in creeping and independent walking in totally blind infants. Fraiberg, *et al*, (1969), point out that this delay is due to the absence of the external stimuli for reaching usually provided by vision. When a child begins to reach out on the stimuli of sound cues alone, he will propel himself forward. He must develop the concept of object permanence before he will reach out.

With the absence of vision there is also no incentive for the baby to sustain an elevated head position. Both head control and trunk control are prerequisite to locomotion. A child who is not physically mature will be delayed in locomotion and grasping and therefore will lack the number of experiences needed for development of physical knowledge (knowing the properties of objects) and logical-mathematical knowledge (knowing the functions and means of objects). Is it any wonder that the normal blind learner may demonstrate a lag in cognitive development?

**SOCIAL EDUCATION** The third developmental factor, social education (which includes language), involves both social interaction and social transmission. From the very beginning the blind infant is more dependent than his sighted counterpart upon the mother figure for stimulation and social contact. It has been demonstrated with sighted infants that the development of object permanence is influenced by the quality of mother-child interaction (Bell, 1970). If this is true, then the blind infant may be further handicapped if the mother figure is not involved in the infant stimulation program.

Social transmission depends upon the ability of the child to operate effectively during social contact. A blind child enrolled in an educational program requires active integration and participation in all activities within the classroom and on the school yard. "Social action is ineffective without an active assimilation by the child, which presupposes operatory structures" (Piaget & Inhelder, 1969, p. 166).

It should also be noted here that visual loss affects imitative learning of facial expressions and gestural movements. Blind individuals show less facial expressiveness and fewer gestural patterns. This may affect sighted persons in their responsiveness to blind individuals within a given social situation. It will also affect the blind person's ability to judge the impact and understanding of his remarks upon the listener.

Maturation, learning, and social education constantly

interact in the development of thought and cognition. "In the development of the child, there is no preestablished plan, but a gradual evolution in which each innovation is dependent upon the previous one" (Piaget & Inhelder, 1969, p. 157).

### Equilibration

The fourth factor of mental development, equilibration, is the key to understanding the cumulative effects of the preceding three concepts. Equilibration, a self-regulatory mechanism of mental development, results from a series of compensations on the part of the learner as he responds to external stimuli. The resulting adjustment is based upon previous learning in a kind of loop-back system and upon anticipatory affective factors, e.g., motivation and values. These two aspects, the affective and the cognitive, are inseparable within the concept of equilibration, which clearly depends upon previous maturation, learning, and social education.

Beth Stephens and Katherine Simpkins (1974) in their study, *The Reasoning, Moral Judgment, and Moral Conduct of the Congenitally Blind*, give us an excellent example of how equilibration involves maturation, experience, and social interaction.

In stories involving falsehoods, the subject was to consider intention versus consequence in determining the gravity of the fabrication. One such moral judgment assessment involved stories of two boys. In the first story the boy intentionally gave wrong directions to a man, but, despite the misinformation, the man did not get lost. In the comparison story, a boy who had just moved to town gave a man what he thought were correct directions, but they were incorrect and the man got lost. The blind subjects generally decided the second situation was more serious, regardless of the positive intentions of the boy. Although responses of blind subjects indicated some consideration of intention versus consequence, the exceedingly traumatic interpretation the blind subjects gave to being lost probably influenced the final response.

The difference in responses between the blind and sighted students to this particular situation can be more easily understood when one considers the interactional effects of maturation, experience, and social learning: First, it is a monumental task for the congenitally blind child to become oriented to and mobile in his environment. Second, based upon his experiences, the fear and hopelessness of being lost is quite traumatic. And third, when a blind child seeks help, the basis of this act must be trust. Now we can perhaps understand how the affective and cognitive aspects of equilibration are inseparable and result in any given behavior based upon feedback and anticipation. (It should be stressed that "moral judgment" is actually a social dimension transmitted through and modified by generation after generation of a sighted society.)

The results of Stephens and Simpkins (1974) study indicate that the differences between the blind and sighted people on measures of moral judgment and conduct are relatively inconsequential compared with deficiencies in logical reasoning. They conclude that classification and class inclusion tasks are particularly difficult for blind children.

Thus these blind subjects of average IQ did not achieve concrete level operational thought with the facility, dispatch, or completion that might have been assumed by their performance on the Wechsler Scales. Review of development over the 12-year period, CA 6-18, indicates that although improvement in concrete reasoning did proceed (albeit dilatorily) in most instances, logical thought



which involved spatial orientation and mental imagery represented an area of continuing inability. Moreover, tasks involving formal or abstract thought generally were not attained by subjects who were 18, and were incomprehensible for younger subjects (p. 56).

These findings and conclusions do not altogether agree with Higgins (1973), who suggests that the condition of total congenital blindness alone is not sufficient to produce a delay in the formation of the intellectual structures underlying classification, and that deficiencies in classification skills appear to be figurative (perceptual) and symbolic rather than to be operational in origin.

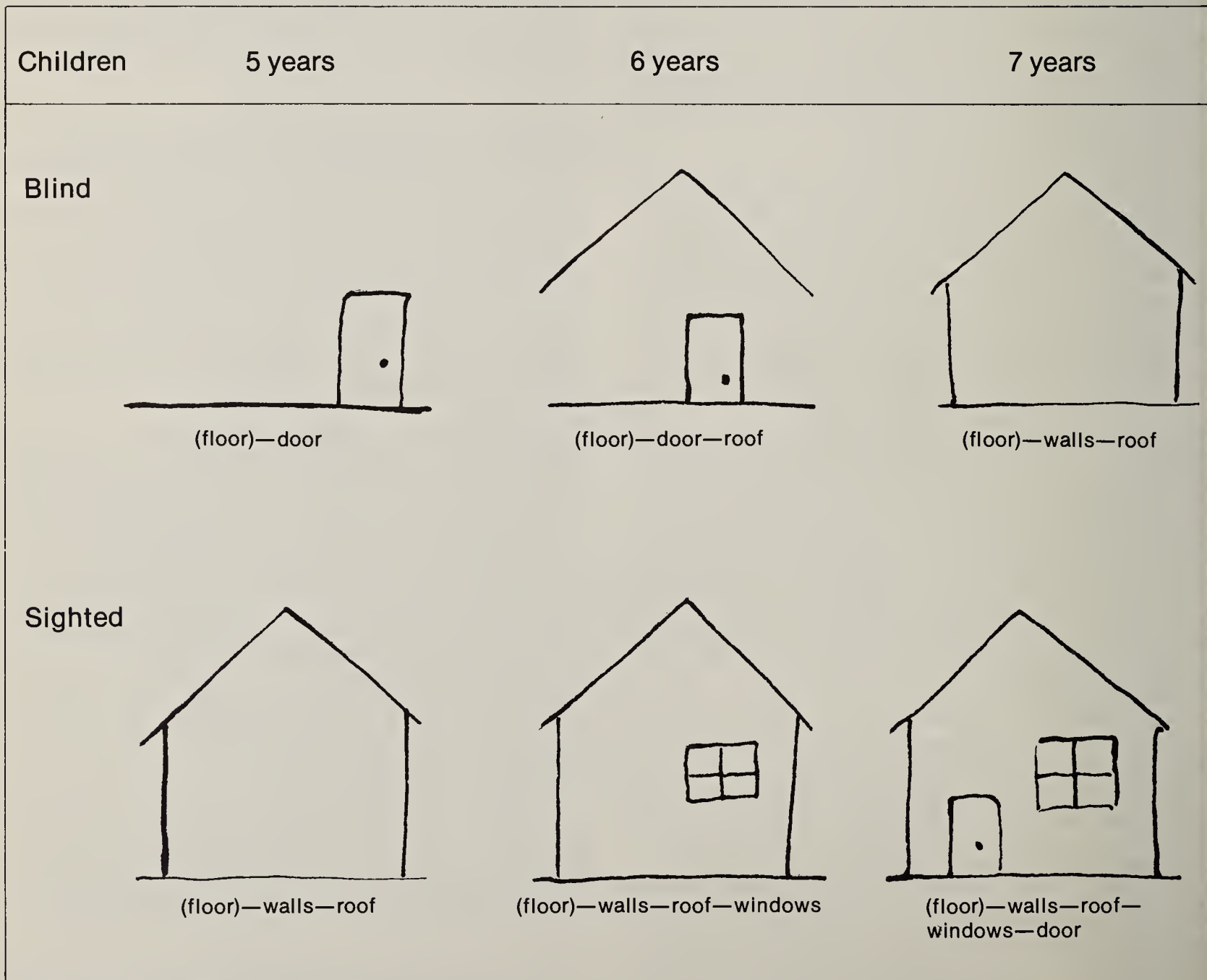
**SYMBOLIC REPRESENTATIONS** If there are qualitative and quantitative differences in the thinking of the blind child, how can this be explained? The answer may lie partially in the role of the symbolic function and language. Piaget writes of five interrelated behaviors which give rise to symbolic representation. These five behaviors appear in increasingly complex order: 1) deferred imitation,

2) symbolic play, 3) drawing or graphic images, 4) mental images, and 5) language.

An example of early deferred imitation occurs when the infant waves his hand in some immature manner, perhaps by opening and closing his fingers in imitation of grandma's "bye-bye." Even at the sensorimotor level of imitation, the significance of vision is apparent. Although the child may continue to open and close his hands after grandma has departed, this is considered practice (exercise play).

Deferred imitation also occurs when the human model is absent. The child evokes the images and imitates the gestural, postural, or movement behavior: he has observed some behavior and after a while, recreates that behavior without the presence of the model. This constitutes the beginning of symbolic reasoning. The role of vision as a unifier for observation cannot be minimized. One cannot imitate at any level what has not been observed. One imitates what one has experienced.

Piaget's next level is symbolic play: the game of pretend-



**Figure 3. House (outer structure) concept.**

NOTE: This figure is based upon priority responses: that is, those items which were mentioned by 50 percent or more of the children within each age group (blind 5, 6, and 7 years and sighted 5, 6, and 7 years). In all groups the floor was given in the lead question and it is included in parentheses and is not to be considered as a priority response.

ing. The child may pretend to be asleep; he may get out a mixing bowl, wooden spoon, and cupcake pan and pretend to make cupcakes; or a group of children may build an airport with construction blocks.

### Categories of Play

Piaget and Inhelder (1969) outlined three main categories of play and a fourth which becomes a transition between symbolic play and adult crafts: a) *exercise play*, a primitive form of play which has its beginnings in the sensorimotor period consists of repeating activities for the pleasure of it: waving "bye-bye;" b) *symbolic play*, the preschooler's way of adapting to the adult world, is "make-believe" play, in which the objects are symbols for something else about which the child is thinking; c) *games with rules* (marbles, hopscotch, etc.), are transmitted socially from child to child and thus increase in importance with the enlargement of the child's social life; d) finally, out of symbolic play develop *games of construction*, which are initially imbued with play symbolism but tend later to constitute genuine adaptations (mechanical constructions, etc.) or solutions to problems and intelligent creations (p. 59).

Play bridges the gap between concrete experiences and abstract thought. Symbolic play is the means by which the child adapts to the adult world. Piaget believes that it is indispensable to the child's affective and intellectual equilibrium. The visually handicapped child with reduced visual input, fewer opportunities to observe adults, and fewer encounters with others is severely limited in the variety of living experiences which form the basis of play. "The symbolism of play . . . may even fulfill the function of what for an adult would be internal language" (Piaget & Inhelder, 1969, p. 60).

Symbolic play or make-believe games "... imply representation of an absent object" (Piaget, 1962, p. 111). Play is both imitative and imaginative. In the main the blind preschooler is not cognitively ready for many play activities. What this should say to the teacher is that the child needs an increase in direct daily living experiences, working alongside the active adult. He needs to be directly involved in all opportunities for learning and should only infrequently be without direct, active social contact. Also, he should not use his bedroom as his center of operation: bedrooms are generally private worlds which lack adequate social stimulation.

### Drawing

Piaget states that drawing is an intermediate step between play and mental images and rarely occurs before two or two and one-half years of age. The drawings of a young child are essentially realistic in nature because the child begins by drawing what he knows about an object. The periods in the evolution of drawings are shown in Figure 1 (Piaget & Inhelder, 1969).

Definite changes in the child's spatial conceptual development can be observed between the periods of "intellectual realism" and "visual realism." Intellectual realism shows no awareness of perspective or metrical relationships, but it does show topological relationships such as proximity, separation, and order. These relationships are primitive in that they are internal to a particular figure; they do not express the relationships among figures in a more complex field. It is not until the period of "visual realism," after the age of seven or eight, that projective spatial reasonings are followed by Euclidian relationships. The child can project a

straight line and also understand elementary perspective, e.g., the chimney is no longer tilted because the roof is on a slant. He can now project himself to another viewpoint and is no longer egocentric in his perspective. At nine to 10 the child can draw an object from a perspective other than that at which he views it.

### Coordination of Perspective

In a study by Dr. Poulsen and myself (1973) coordination of perspectives reflected more than any other task the spatial conceptual deficits in low-vision adolescents. The students' abilities to conceptualize projective space was the focus. They were shown mountains both on a concrete model and graphically illustrated—hidden behind or in front of each other—in a set of nine pictures. Those subjects with low visual efficiency (not necessarily the greatest visual loss) performed most poorly on this task. Low visual efficiency may have more to do with poor graphic imagery than development of visual perception per se. The low vision and partially seeing students continually oscillated between egocentric and decentered thought. The demands for spatial reasoning were beyond their cognitive abilities. Only two of the 10 subjects mastered the concrete operation involving bi-dimensional projective space. There was clearly a deficit in symbolic imagery at this level.

### Mental Images

Mental images are relatively late in developing and appear also as internalized imitations. Perceptions and images are classified under the figurative aspects of cognitive functioning as opposed to the operative aspects (actions and operations). At the preoperational level, reproductive images are limited to perceptual imitation and are static in nature, evoking what has been perceived previously. "Reproductive images may include static configuration, movement (change in position), and transformation (change in form), for these three kinds of realities occur constantly in the perceptual experience of the subject" (Piaget & Inhelder, 1969, p. 71). Static, kinetic, and transformational images therefore represent what is actually occurring in the child's environment. Kinetic and transformational images are possible only after the period of concrete operations. When blindness occurs before the age of six, visual imagery is believed to atrophy. Before the period of concrete operations, the image is static and cannot give rise to operatory structures. "After the age of seven or eight, the image becomes *anticipatory* and so better able to serve as a basis for the operations" (Piaget & Inhelder, 1969, p. 79).

Interestingly enough, the reproductive image level is where we may again assume that there are catastrophic effects upon the cognitive development of the blind child due to experiential deprivation. This may be more detrimental than the loss of ability to perceive the environment.

In a comparative study (Kephart, Kephart, & Schwarz, 1974, p. 442) of blind (N = 49) and sighted (N = 37) children, the Kephart Scale was used as a means for assessing the personal and environmental awareness of blind children between the ages of five and seven years enrolled in residential centers. (Note: Brekke, Williams, & Tait (1974) concluded that there are important differences between blind children who have been institutionalized and those living at home in the area of conservation: their results favor home placement.) The spontaneous responses of the blind and sighted to the body image (verbal construction) game



revealed that, in constructing an imaginary friend, the blind subjects mentioned fewer body parts at each age level. The chart is based upon those body parts mentioned by 50 percent or more of the children. In all situations the head was given as the lead response. The authors wonder why the fingers and ears were not mentioned, considering their importance in receiving tactile and auditory information.

Similar responses were also given to the "House Concept." "The outer structure of the house (walls and roof) is mentioned by the sighted children at all age levels. The blind children, on the other hand, began at age five by mentioning the door and at age six the door and roof. By age seven, the blind children had omitted the door as a priority response, and walls and roof became the preferred response. The sighted group, in contrast, by age seven had completed the physical structure of the house" (pp. 424-425).

Probably the most revealing and alarming information from the study is that at all ages the blind children centered their attention on their own bedrooms, whereas the sighted children equally divided their attention between the bedroom and kitchen. (This crucial point was previously alluded to in the need for direct experiences in the development of symbolic play and social interaction.) The restrictive environmental information of the blind was apparent across all age categories, with the sighted children giving two descriptive responses to every one offered by the blind.

**ROLE OF LANGUAGE** Finally, the role of language appears in the development of the symbolic function. Language is slowly acquired and is based upon imitation. Piaget believes that language does not constitute the source of logic but rather is structured by it. The roots of logic have their beginnings in the general coordination of actions. For this reason we find that blind children, lacking in the abundance of experiences necessary for the development of operational structures, appear deficient in logical operations. Friedman and Pasnak (1973) state that "... blind and sighted children are approximately equivalent in classification and seriation at 8 years of age; thereafter the blind begin to fall behind, especially on verbal tasks.... The lack of vision impairs performance on verbal tasks as well as manipulative tasks when these tasks involve conceptual abilities" (p. 61).

Research studies with the blind using the Wechsler Intelligence Scale for Children (WISC) indicate that on Vocabulary, Similarities, and Comprehension subtests the blind had the lowest scores (Gilbert & Rubin, 1965; Hopkins & McGuire, 1966; and Tillman, 1967a). "The blind tend to approach abstract conceptualization problems from a concrete and functional level and consequently lag behind the sighted child" (Tillman, 1967b, p. 112).

These depressed mean scores may be due to classificatory cognitive delays. Classification skills are closely related to language functioning on the WISC. Stephens and Simpkins (1974), by means of factoring, found in their blind subjects (N = 75, ages 6-18 years) Similarities loading with combinatory logic and Comprehension loading with hierarchical classification. The authors noted that the operational processes of their blind subjects drew heavily upon a verbal component (Verbal WISC plus Piagetian tasks) and appeared to be compensatory in nature.

"Verbalisms" (i.e., giving an acceptable definition of a word, but not accurately identifying the real object) in the blind have been frequently noted over the years. Harley (1963) found that verbalism was significantly related to lack of experience; the children with the least experience were

highest in verbalisms. "It was found that a girl who played trumpet in the school orchestra was not familiar with a trombone. Several children who had extensive auditory experiences with violins could not tactually identify a violin. It seems that it cannot be assumed, as with sighted children, of comparable characteristics, that blind children have a familiarity with the items about them which they mention in their speech" (Harley, 1963, p. 53). And blind children have no visual means of verification of auditory input except for "hands on" tactual experiences.

**CONCLUSION** The need for direct, concrete experiences for blind children is of paramount importance. Direct physical experiences with the real object, total sensory and conceptual involvement with concrete objects, appropriate verbal interaction with other children and adults will help to give blind children a knowledge of the realities around them.

The blind child is at a serious disadvantage in experiencing things and situations in their totality, let alone abstracting the physical and logical-mathematical knowledge necessary for cognitive development. If a teacher systematically incorporates levels of representation and levels of operation into content areas, the child will develop cognitively according to his potential operational rate. The task for the teacher is not easy. Learning must be continuously monitored, planned, and sequenced. The total classroom environment must fulfill the individual needs and requirements of each child—feeding into the child the necessary content in order that he may develop intellectually.

This important role of the teacher has not received the necessary emphasis in many preservice and inservice training programs. Although most teacher training institutions agree theoretically upon the competencies needed by the teacher, they do not consistently evaluate skills, methods, and techniques required to achieve their goals. Despite the fact that everyone verbalized the need for direct experiences in conceptual development, there seems to be an excessive use of models (a poor substitute for direct experience). Most institutions have a comprehensive viewpoint of education, but in practice spend an inordinate amount of time developing academic skills. A cognitively oriented environment should attend to the means of an education: that is, cognitive growth along with the acquisition of academic skills. Activities to promote cognitive development should occur naturally and easily in programs based upon the following Piagetian tenets: 1) cognitive development is a gradual, evolving process dependent upon social, emotional, and physical growth and cannot be understood in isolation; 2) individual differences and patterns of growth influence functioning but are also affected by the sequence, variety, and quality of symbolic experiences; 3) knowledge of reality must be discovered and constructed through the activities of the child at his cognitive structural level; 4) activities promoting spontaneous exploration, either physical or intellectual, occur at all levels (at the same time, the role of verbal mediation in problem solving tasks should not be minimized); 5) a cognitively oriented curriculum continuously develops and reinforces spatial-temporal and logical-mathematical reasoning; 6) generative learning rests upon the child's spontaneity and creativity, whereas factual learning comes through practice, repetition, and memorization. Therefore, teachers must develop their curriculums and structure their classrooms wisely. ■



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## Resolutions Adopted at 60th International Labor Conference

The International Labor Organization at its 60th General Conference held in Geneva, Switzerland, reaffirmed its aim to advance the vocational rehabilitation and social integration of handicapped persons. Toward this end the Conference urged all member States to follow the principles of the Vocational Rehabilitation Recommendation, 1955, which states that "vocational rehabilitation services should be made available to all persons with disabilities, whatever the origin and nature of their disability and whatever their age, provided they can be prepared for, and have reasonable prospects of, securing and retaining suitable employment." In addition the Conference encouraged the use of technological innovation to improve employment prospects for handicapped persons, and called for assistance to developing countries where there is a disproportionately high number of handicapped persons with limited opportunities for work.

At its close the following resolution was adopted by the Conference:

The General Conference of the International Labor Organization—*Urges* member States to recognize that all persons should have the right to benefit from vocational rehabilitation and training in order to be able to perform suitable work, if they so wish; a high proportion of disabled or handicapped persons in society is a serious drain on the national economy and could undermine the development of the prosperity of the country and therefore the welfare of the population, unless effective measures are taken. To provide for the integration of disabled or handi-

capped persons in general training and employment schemes; special services and support for the severely disabled or handicapped.

*Calls* on all public authorities and employers' and workers' organizations to promote maximum opportunities for disabled or handicapped persons to perform, secure and retain suitable employment.

*Requests* the Director-General of the International Labor Office to compile, according to a uniform pattern, documentation on technical experience, legislation and research in the field of social integration and vocational rehabilitation of the disabled or handicapped, with a view of informing all member States and all organizations concerned, in order to increase the effectiveness of services for disabled or handicapped persons; to assist developing countries in their efforts to create vocational rehabilitation facilities and open or sheltered employment opportunities for their disabled or handicapped persons; to take the necessary initiative, by studying all possibilities of launching, at the most suitable geographic level, a comprehensive campaign for vocational rehabilitation and social integration of the disabled or handicapped, in co-operation and co-ordination with the United Nations, its specialized agencies and international, regional and non-governmental organizations concerned, with a view to promoting the extension and development of rehabilitation services for the disabled or handicapped; to accord the highest possible priority to programmes aimed at the vocational rehabilitation and social reintegration of the disabled or handicapped and to inform the Governing Body of the International Labor Office as soon as possible on the measures taken in the field of rehabilitation.



# Drama: A Means of Self-Expression for the Visually Impaired Child

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As a specialist in expressive arts, I work with 40 children between the ages of four and 11, in both individual and group play sessions, in the areas of art, drama and movement. The primary objectives of the program are to promote the children's development of self expression and creative skills.

Working with these children, I have noted a number of concerns that have repeatedly emerged in their storytelling and role playing, during both the individual and group sessions. One of the most urgent concerns for both partially sighted and totally blind children is *how* and *why* their vision has become impaired. Each child has his or her own unique way of expressing and playing out these feelings, but the need to acknowledge and cope with these problems is characteristic of the group as a whole. These feelings are often so intense that they interfere with the child's performance in other areas, such as academics, social relations, self-care skills, and mobility; as well as inhibiting the development of self-acceptance and self-esteem. The purpose of this paper is to share what I have learned about the effectiveness of drama as a tool for meeting some of these needs.

As an illustration, I will discuss one particular child, a ten-year-old totally blind boy whom I will call Jim. Having worked with him for a period of ten months, I feel his play sessions vividly communicate the concern about visual loss experienced by him and his peers at school.

Jim's blindness resulted during infancy when his eyes were removed because of a cancerous condition called retinoblastoma. Unfortunately, his file contains little data on the number of operations he had, length of hospitalization, or reactions of family members to his surgery and blindness.

When he was eight years old Jim entered the Western Pennsylvania School for Blind Children, residing at the school from Monday to Friday, (his parents lived far away),

**Abstract:** *Drama can be used as a tool for helping blind children to express feelings and fantasies about their visual impairment. Excerpts from sessions conducted with one child are used in this article to illustrate the role of drama therapy in the dynamic process of identifying and working through feelings about visual loss, and opening the way for self-acceptance.*



**Getting in touch with one's self makes relating to others easier.**



returning home for weekends. Jim is a bright child, yet he was doing poorly in the classroom, and had great difficulty learning mobility skills. The educational director felt psychological problems might be contributing to Jim's learning difficulties, and referred him for play sessions.

**ACTING OUT** Jim met with me twice weekly for half-hour **FANTASIES** play sessions. In these meetings I offer the children a range of options, and move in the direction that they are most comfortable with. This approach is similar to Axline's (1969) "non-directive play therapy." Jim chose to use the time primarily for telling and acting out stories. My role in the sessions varied. At times I helped Jim to get started or to elaborate his play simply by "recognizing and reflecting expressed attitudes," while at other times I asked questions, helped him organize the play, or facilitated the "acting out process" through role taking and the use of space and props.

In the stories Jim told and acted out, the following were the predominate feelings relating to his blindness: wondering, wishing, mourning, raging, and finally, accepting. Though I will discuss them separately, and in the sequence mentioned above, it should be understood that they are inter-related, and were often expressed simultaneously. They also recur in the dramatic play of the other children at school, though they may express only some of them, and in different ways. Some of the children, like Jim, have received an accurate explanation about how their sight became impaired, while it has never been discussed with others. Yet experience indicates that whether or not the child has received an explanation, he still has questions, wishes, and ideas of his own. Excerpts from Jim's sessions will illustrate this, as well as the dynamic process of his identifying and working through the feelings related to his loss of vision.

During the first few months Jim played out innumerable stories about people who get injured. Many of the stories concerned Steve Austin, the fictional hero of the television series "The Six Million Dollar Man." The Steve Austin TV character was in an accident where some of his bodily parts were maimed beyond repair. In the show, he becomes the recipient of some new artificial parts, an arm, a leg and an eye, called "Bionics." Steve Austin is a particularly apt self-reference for Jim. Their situations parallel each other in a number of different ways. Each sustained substantial bodily injury, though the causes were different. Each received artificial parts to replace their original ones; Steve Austin got bionic parts, Jim got prosthetic eyes. The important difference, of course, is that in the TV series, Steve's replacements are better than the original ones, while Jim experienced only the loss.

In one session Jim played the part of Steve Austin, and pretended he was being interviewed on a TV show.

"Hi kids. I'm Mr. Steve Austin. I have some *Bionics*. Bionics are artificial parts of the body. Now as you will see I have this artificial arm—*Bionics*!

"First I had these real parts. And then this man came. He said he would kill me." You be the man. You shoot—*Puchow*!

And then a man comes, and puts Steve up, and puts a bionic eye on Steve Austin.

The above battle was fought again and again, since Jim continued to be preoccupied with the issue of loss and its origins. As with many other children at the school, the issue is unresolved. In the following playlet, Jim sought an explanation for Steve's injury.

"Well, let's talk to the man who saved me. . . . I know the reason! I know all! I am a detective. Sherlock Holmes taught me how to solve mysteries. You find out what he done first. This mystery was, Number 1: Who stole the car? Now, Number 2: Why did he steal the car?

"Mr. Johnson is the criminal. I found the door. I see some money stolen. Mr. Johnson, where are you? There you are. I've been waiting for you ever since. I saw some money this morning at your house. (clenches teeth)

"Why did you steal it? I want it right now! You better tell me right now. While I was gone, did you come to my police station and take all my money?"

In the investigation undertaken by Sherlock Holmes he finds that a Mr. Johnson was the crook, having come to the police station and stolen Steve's money. The image of the "robbery" is very likely an allusion to the disease that necessitated the removal of his eyes. Jim could understandably view the doctor who performed the operation, and the surgery itself, as a criminal act that robbed him of something he valued.

Jim wondered often and had many ideas about how and why people get maimed and injured. The play sessions provided a forum for him to acknowledge, elaborate, and clarify these "wonderings." Jim's symbolism was relatively literal, and he dealt fairly directly with the issues that were disturbing to him, whereas other children may need a greater measure of disguise and possibly express additional "wonderings."

**MAGICAL SOLUTIONS** For months Jim's stories ended with wounds being healed, damage being repaired, and severed body parts being restored by real or magical solutions. Burlingham (1972) says, "It is only natural that the blind are curious about and full of envy of this foreign world, and that they develop intense wishes to possess this sense which they lack, and which obviously opens up inconceivably marvelous feelings and sensations." The Steve Austin character, around which many of Jim's stories revolved, eloquently expressed this wish. Steve Austin was severely hurt and lost an eye, a leg, and an arm. However, the doctors attending him replaced the severed limbs and eyes with bionic ones. The bionic parts look real, function like real parts, and provide increased powers. Although Jim's prosthetic eyes look real, they don't really work.

Jim communicates the intensity of his wish to regain sight in other stories, like the following:

First I had an eye. The middle of the story happens when my eye falls out, and the doctor gets the eye. And my mother and dad were gonna give one of their eyes and I was very lucky. I was almost gonna die. Then make pretend you're the doctor and say,

"This is the eye you lost. Did you just pull your eye out or did it fall out?" Make pretend I say it fell out. Then I put the eye back in again. Then I can see. That's the end. You can still see with one eye.

In the following quote Jim recovers his vision in a slightly different manner.

Say, let's look in the drawer and see what's inside. Well, what have we here? *This is the eye that I have been looking for!* I had an eye and you came over to my house. You grabbed my eye and you took it out. And I was so worried about the eye. I called the police. I called everybody.

Jim's insistence on a magical restoration (i.e., finding the lost eye), shows how painful the loss was and how unrealistic



tic his expectations are. Jim uses denial in fantasy to handle the feelings of loss. It was as though this denial was pervasive, reflected, for example, in his difficulty learning braille and mobility skills. He was so involved in wishing for sight that he rejected learning any skills that would signify an acknowledgement of his blindness. Burlingham says:

They attempt to attain the impossible by unsuitable means, and in this process neglect their own sensory world, in favor of seemingly participating in the sighted world; (thereby) interfering with their capacity to adapt to life on the basis of their own limitations and abilities.

Yet Jim, like the other children, seemed to need to go through this process of wishing before he could arrive at a realistic self-image. The play sessions provided a context in which Jim could, in fantasy, fulfill his wish to regain his sight. Through such wish fulfillment he was reunited, however momentarily, with what was lost.

**REALITY** Jim wished his blindness could be healed, and **AND GRIEF** had a very hard time dealing with the impossibility of this hope. As Burlingham has stated, "... it is one of the tragic facts, with which the blind child has to come to terms, that the process to see is not acquired gradually through growing up, but will be lacking in his life forever."

After many months, Jim began to tentatively acknowledge the irreversibility of his loss. As he gave up wishing for sight, he started to mourn for the loss of it. Some of the grief and the anger Jim felt is expressed in the following story. At this point he had received one prosthetic eye, and was scheduled for corrective surgery for a second. Acutely aware of the gaps between his hopes and the reality of his situation, he expressed his feelings in his dramatic play.

Once upon a time there was a boy named Ritz. And Ritz said to his mother, "Can I go outside and play?"

"No, cuz nobody can watch you," said his mother. Then Ritz got so mad and stomped his feet. The whole house was shaking. And then his dad came and said, "What do you seem so mad about?"

"I can't go outside and play." Then Ritz said, "Oh I wish I could have that eye." Then Ritz went to the doctor. It was the same eye

Ritz had when he was born. He played and he went outside and he was so happy, and everybody knew that Ritz had an eye. They were so happy that they had an eye. . . . Are you so sad Sue? How do you feel when you don't have eyes? Even if I had both prosthetic eyes, my mom would still have to leave me in the house.

Here, Jim leaves the world of fantasy and begins to talk about reality. Like Ritz, Jim must stay inside, whereas his sighted siblings can play outside. Jim's sighted younger brother can run with abandon and excels in competitive sports. Being in a residential school, Jim sees his family infrequently, and may well feel "shut away" from people by distance as well as by handicap. Jim has cause for sadness. Though expressing these feelings does not undo the loss or remove the limitations, it does seem to help Jim and the other children begin to cope with their problems.

### Anger

Jim had feelings of anger, that stemmed from the loss of his eyes and the limitations his blindness imposed on him. Axline (1969) says, "These handicapped children have within themselves the same feelings and desires of all normal children. Many times the handicap is a frustrating and blocking experience that generates almost intolerable tensions within the child."

Some of Jim's anger came through in the Sherlock Holmes story, where Holmes was investigating Steve Austin's injury, and uncovered a robbery. In the following lines, Steve Austin talks with the robber.

Mr. Johnson says, "Well, I didn't know it was your money." "You didn't know! That had a name on it. S-T-E-V-E! You would have checked it and you would have known it was mine."

The anger Jim felt was expressed through words and through movement. In one session, Jim acted out a fight between Steve Austin and Bigfoot, a contemporary science fiction character, using a stuffed animal for the beast role. The story started:

Bigfoot says he's going to eat Steve up. Steve says, "That's what you think. I have a 22 rifle that I got." Bigfoot says, "No one can fight me."

Steve says, "What did I hear? I'm strong. My *bionics* make me strong. And I have a lot of powers. I will count to 20, and if you don't



Puppets help some toward self-expression.



get your hands off Mr. Parker by the count of 20, you shall be dead dead. 1, 2, 3-20. *PUCHOW!*"

Jim shifted the target of Bigfoot's violence from Steve Austin to Mr. Parker, a detective investigating the case. It was as if he needed more symbolic distance to act like the aggressor. At this point, having already shot "Bigfoot," Jim began to sit on, press, punch, and kick him. He continued talking:

"Now you see, now you see who's stronger? Now do you see Bigfoot? That's going to teach you a lesson. He's dead."

In fantasy, Jim was able to create a culprit responsible for or intending to do injury, and punish him. For Jim and the other children, the loss or impairment of vision creates feelings of anger that need to be expressed. Of all the feelings discussed in this paper, anger was the one expressed most frequently and intensely.

**TOWARD SELF-ACCEPTANCE** Over the months, through the process of struggle and denial, Jim gradually moved toward an attitude of self-acceptance. One of the reasons Jim was referred for play sessions was because he had resisted learning mobility techniques. In a drama, Jim has a teacher scolding a student for not learning these same techniques.

"Why didn't you use that technique? . . . You have to learn your mobility techniques, you hear me? (Jim starts to yell.) Just because you don't have eyesight doesn't mean that you have to get lost all the time. You have a cane, and you have techniques that I taught you. *So get over here girl and use your cane!*"

A number of factors probably contributed to Jim's poor performance in mobility. By refusing to learn the techniques he could feel, in some measure, in control of himself. He was also denying the need for such skills. At the same time, however, he was overwhelmed by feelings of grief and helplessness. Being able to express some of these feelings helped Jim to begin developing a more realistic attitude. Burlingham states that, "The ability to express their thoughts, fantasies, and disappointments about blindness,



**A big step — relating to teacher.**

has a liberating effect on the children . . . it increases the children's curiosity about other matters and allows them to use their intelligence to draw conclusions."

At the very end of the schoolyear, Jim showed evidence of resolving some of the issues he had dealt with during his play sessions. This is apparent in the very last story he told, titled, "How the Bad Guy Loses His Strength." The story started out as follows:

There was a rule. When the clock says midnight everybody was supposed to go to bed. One night it was midnight. The bad guy said, "I guess I'll stay up and see what happens." The king was angry to see the bad guy up and he had a meeting with him and said, "Listen here, what are you doin' up so late? Everybody else is in bed." He said, "The next time I see you up, you're gonna lose your strength."

In the succeeding segment of the story the "bad guy" did stay up again, and the king then took his strength away with a knife. Jim said the lesson of the story was: "If you want your privileges you have to listen to what your mother and father tells you. That kingman was his father." Jim still described injury as resulting from a "badness," like not listening to your parents. At that point, he introduced the character of a queen, who suggested that perhaps the boy did not lose his strength because of bad behavior. Rather, it was a sickness that injured the boy. Jim had the king reply:

"That sickness could have caused a dangerous disease. That sickness made him weak. Listen, we love our son. If we don't find out something to make him strong, he'll die. We need a powerful medicine.

"I know it's not the boy, the boy's not the one . . . that did it. But the boy doesn't know about this. People get so weak they don't know what's happened."

The queen then suggests that the king explain this to the boy. The king says,

"Son, I know you're anxious to get your strength. Mom and I agreed it wasn't no one that did it. You had a sickness, a disease that caused it."

Here, Jim acknowledged the non-malicious origins of his injury, and expressed the belief that "the boy" was not responsible. Though occasionally he would return to the original wish for a magical cure, he understood that the fantasies were not real. He had begun to accept his blindness, though at times he would still wish and rage and mourn. Jim expressed this when he said:

"Blind people, once they find they can do things by themselves—it makes them have a happy feeling. But there's still a teeny weeny little sad feeling that they're blind, and can't see." ■

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# The Impact of Significant Adults' Expectations on the Life Style of Visually Impaired Children

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The major concern of this study was to investigate selected behavioral patterns of blind children with the aim of improving existing services and designing new programs which would provide the blind child with maximum opportunities for adequate social performance in a sight-oriented society.

Literature on the phenomenon of blindness supports the ambivalence of the sighted in relation to blind people (Bauman & Yoder, 1966; Goldberg & Swinton, 1969; Scott, 1969). Historically, loss of sight is regarded as secondary only to loss of life; consequently the blind individual is regarded as severely handicapped and virtually helpless. Fiction and mythology have surrounded blind characters with an aura of the supernatural, either attributing to them phenomenal powers or debasing them to occupy a forced dependent and inferior status in the social structure (Chevigny, 1946). Their inability to explain the world through visual cues has led society to blanket the blind person's performance under the unitary concept of dependency, regardless of the fact that their behaviors may be contraindicated of this label. Perhaps it is this misconception that accounts for the lack of *role-synchrony* which exists between role expectations of the sighted and role performance of the blind (Thomas, 1966; Wright, 1960).

**ACCIDENTAL DEVIANCY** The question which immediately arises leads to the inquiry: is there a blind role, determined by the nature of the handicap and affecting the interactions engendered by it? Perhaps the answer could be sought in theories of deviance, (Lemert, 1964) where deviance is conceptualized as "limited access to means of adaptation" (Lorber, 1967). A sociobiological handicap such as blindness does tend to place its victim in an accidental deviant position as opposed to deliberate deviance (Leznoff & Westley, 1969), relative to accepted norms of society which determine behavioral expectancies, and shape interpersonal role postures between the deviants and "others" (Erikson, 1973; Schett, 1969). In the case of the accidental deviants, such as blind persons, the loss of the crucial faculty of sight produces role performance considerably different from the sighted. Interactional rules are frequently determined by the idiosyncratic whims of the sighted who, ironically, set the pace for interpersonal relationships since they apparently occupy the privileged status (Goffman, 1963; Goffman 1963; Scott, 1969). Thus, in a society geared to the adequate functioning of the sighted, blind persons as a deviant minority perforce must learn to emulate sighted socially acceptable behaviors or face the probability of societal ostracism (Freedman & Dobb, 1968; Scott, 1969). One solution to this problem can be that the stigmatized person take refuge with others of his kind (e.g., the sheltered workshop programs) (Klapp; MacFarland, 1960); however, in an enlightened society the goal is not segregation but integration of those "different" into a meaningful human mosaic (Leznoff & Westley, 1969). This integration can only be made possible through candid exposure to the deviant culture which would familiarize the interacting parties with mutual role expectancies (Wright, 1960).

**STEREOTYPING BLIND PERSONS** The discussion thus far suggests that there is an implicit blind role, ambiguously defined and in exaggerated discrepancy with the social reality of blindness. This stereotyping of blind persons leads them to feelings of frustration and forces them to manage their "spoiled identity" in accordance with sighted behavioral rules of conduct (Erikson, 1973; Goffman, 1963). The

**Abstract:** Examines the behavior performance of blind persons in view of the role expectations of significant others. The findings suggest that there is a correlation between the expectations of significant others and the "blind role" assumed by blind persons. However, it was also found that in many circumstances blind persons act in accordance with accepted social norms due to broader societal conditioning or because of their own self-expectations.

**Note:** Paper presented at the Fifty-second Annual Meeting of the American Orthopsychiatric Association, March 24, 1975, Washington, D.C.

**Table 1. Multiple regression summaries depicting role synchrony between expectations for and performance of blind subjects (N = 56) on seven selected social and instrumental tasks.**

Tasks	Variables entered	MR	MRSQ	Increase in MRSQ	F to enter or remove*
Allowance management	CPTÉ V <sub>6</sub>	.3476	.1208	.1208	7.4226
	TEXP V <sub>5</sub>	.4022	.1618	.0409	2.5888
Table etiquette	PEXP V <sub>2</sub>	.4236	.1795	.1795	11.8103
	CPHPE V <sub>4</sub>	.5161	.2663	.0869	6.2746
	CPPE V <sub>2</sub>	.5800	.3364	.0700	5.4877
Extracurricular activities	PEXP V <sub>2</sub>	.3004	.0904	.0904	5.3696
	CEXP V <sub>3</sub>	.4284	.1836	.0931	6.4877
Phoning skills	CPTÉ V <sub>6</sub>	.4033	.1627	.1627	10.4899
Bed making	CPTÉ V <sub>6</sub>	.3176	.1009	.1009	6.0586
	PEXP V <sub>2</sub>	.4081	.1665	.0657	4.1753
	TEXP V <sub>5</sub>	.4531	.2053	.0388	3.5360
Eating behaviors	SELFEX V <sub>9</sub>	.2536	.0643	.0643	3.7102
	CPCE V <sub>4</sub>	.3314	.1098	.0436	3.7124
Personal hygiene	CPCE V	.4983	.2483	.2483	17.8391

\*Level of significance for the regression equation was set at  $F = 2.5$ ,  $p < .1$ . However, variables entered the regression equation at  $F = 4.0$ ,  $p < .05$ ;  $F = 7.08$ ,  $p < .01$  and  $F = 11.97$ ,  $p < .001$ .

**Table 2. Regression summary of two non-compliant social tasks (M, N = 30, F, N = 26).**

Social Task	Sub-Sample	V-entered	MR	MRSQ	Increase in MRSQ	F to enter or remove
Interaction with opposite sex	M	SELFEX V <sub>9</sub>	.3615	.1307	.1307	4.2088
	F	SELFEX V <sub>9</sub>	.4243	.1801	.1801	5.2702
Phoning skills	M	CPTÉ V <sub>6</sub>	.4352	.1894	.1894	6.5421
		TEXP V <sub>5</sub>	.5674	.3219	.1325	5.2760
		SELFEX V <sub>9</sub>	.6188	.3829	.0615	2.5714
	F	SELFEX V <sub>9</sub>	.6280	.3944	.3944	15.6306



accidental deviant is in an obviously discredited position vis-a-vis society, as opposed to the deliberate deviant (Lorber, 1967). As such the former is deprived even of the choice of disclosing his deviancy and must debase himself to act in a manner relevant to the role-expectancy of his interaction with others. Thus, to the extent that the blind person's performance is consistent with role-expectations of significant others, it would support the contention of role-synchrony and the existence of a "blind role" which is accepted by blind persons and according to which they manage their social interactions (Freedman & Dobb, 1968).

Role is a reciprocal and complementary concept which is established only if there is agreement between interacting others as to the behavioral referents of a given position (Biddle & Thomas, 1967). To the extent that the blind individual's performance matches his own expectations with little correlation with interacting others' expectations there will be a lesser likelihood of the "blind role" enactments.

### Role Synchrony

Theory suggests that role-synchrony exists in most normal situations where interacting parties perform according to a range of prescriptive behaviors (Mead, 1934). However, if no normative standards exist for prescriptive behaviors, role-synchrony is absent. To the extent that prescriptive norms for behaviors are distorted or unrealistic between blind and sighted interactions, role-synchrony would tend to be nonexistent in these encounters (Thomas, 1966). However, if exposure of sighted persons to the subculture of blindness is increased, communication between the sighted and the blind is likely to improve, resulting in a closer and more realistic match between role-expectation of the sighted and the performance of the blind.

Congruence between the blind individual's self-expectations, interactions with others, expectations, and his actual performance raises the paradoxical issue as to whether the behaviors emitted by the blind individual are in keeping with the realistic extent of his performance capability, or a function of his socialization as an "accidental deviant." This remains a moot question open to speculation and outside the scope of this study. The focus of this study is essentially on the issue that the blind person should be given opportunity for role enactments which are consistent with his realistic performance capabilities within the context of his physical limitations. To achieve this goal, communication channels between the blind person and his environment should be unambiguous and accessible to empirical investigation. In keeping with the above assumption, the authors selected for study a homogeneous population from a school for the blind. An additional advantage of selecting this setting was the accessibility to significant interacting others who were intimately familiar with the blind subculture.

### STUDY

#### DESIGN AND METHODOLOGY

To test the extent of role-synchrony between blind-sighted interactions, the authors investigated the hypothesis that familiarity with the handicap of blindness leads to role expectations that are positively associated with the actual performance of the blind. Operationally, the study measured the performance of blind adolescents in relation to selected categories of expectancy variables, namely: 1) actual expectations of significant others (these included parents, houseparents, counselors and teachers); 2) the blind person's perception of the expectations of others; and 3) the blind person's self expectations.

The median age of adolescents in the sample was 15. The rationale for selecting this age group was: 1) verbal ease in responding to questions, 2) common sharing of the adolescent stage of growth, and 3) ability to comprehend the requirements of social (behaviors which necessitated interaction, e.g., allowance management, table etiquette, extra-curricular activities) and instrumental (routine behaviors or physical self-management, e.g., bed making, eating behaviors, personal hygiene) tasks as opposed to a younger group. Variable control took into account social class (lower middle), range of visual acuity, and time lapse since onset of blindness (Lowenfeld, 1963).

The instrument for data collection was based on two considerations: 1) previously identified factors related to performance measures of physically or emotionally deviant groups (Adler, 1955; Bateman, 1962; Dinitz, 1962); and 2) observable behaviors for which daily baseline rates could be obtained. A total of 20 social and instrumental tasks were identified through factor analysis (Mayadas, 1972). These tasks were correlated with the following expectation and performance variables.

### Predictor Variables

The criterion variable was the actual performance of social and instrumental behaviors.

Variable 1: PEXP—Parent expectations

Variable 2: CPPE—Child's perception of parent expectations

Variable 3: CEXP—Counselor expectations

Variable 4: CPCE—Child's perception of counselor expectations

Variable 5: TEXP—Teacher expectation

Variable 6: CPTE—Child's perception of teacher expectation

Variable 7: HPEXP—Houseparent expectations

Variable 8: CPHPE—Child's perception of houseparent expectations

Variable 9: SELFEX—Self expectations

Variable 10: PERF—Performance

A linear step-wise regression analysis was applied to measure the strength and association of the criterion variable with these nine predictor variables. This statistic provides the cumulative regression of the criterion variable on a range of predictor variables, thus depicting the degree of predictive potency of each independent variable in the regression equation. This statistic explains exactly what portion of role performance variability on each task can be explained by one or more categories of expectancy variables.

### Data Analysis and Findings

The major hypothesis of the study which postulated role-synchrony was supported. Table 1 provides a descriptive pattern of predictor variables entering the regression equation as partial predictors of criterion variance on seven selected social and instrumental tasks.

Using "table etiquette" as an example, PEXP (parent expectations) account for .1795 of total variance with an F value of 11.81,  $p < .01$ . The next variable which has a significant bearing on the performance of the same task is CPHPE (child's perception of houseparent expectations). This adds .0869 to .1795, thus explaining a total of .2663 of the criterion variance, with an F value of 6.27,  $p < .05$ . The third variable CPPE (child's perception of parent expectations) explains the least amount of performance variability, adding only



.0700 to the role performance variance explained by PEXP and CPHPE. The influence of PEXP, CPHPE, and CPPE bring the total criterion variance to .3364 with an F value of 5.48,  $p < .05$ . Thus, performance in "table etiquette" is positively associated with the cumulative influence of three variables, each of which explains a portion of the variability on this behavior. This suggests that 34 percent of the performance of the blind child on the social task "table etiquette" can be controlled by manipulating the above mentioned variables which predict, respectively, given portions of the explained variance. It is interesting to note that despite the cumulative effect of the three variables only .3364 or 34 percent of performance variability is accounted for in the regression equation. If total variance is given a value of 1, then  $(1 - .3364) = .6636$  or 66 percent of the variance on this particular task remains unexplained. This reminds us of the incredible complexity of human behavior, much of which is still not understood despite the efforts of the behavioral sciences to find plausible explanations for it. Also, it suggests that expectancy categories are just one set of variables that affect performance and perhaps a further explanation of performance should be sought in areas other than social or behavioral interpersonal control.

In the subsamples, differences existed between performance of residential and nonresidential students. Houseparents' and parental expectations, respectively, acted as relatively significant predictors of behaviors. Performance of nonresidential students tended to show greater assertiveness in social behaviors as contrasted with residential students (Mayadas, 1975).

**ANALYSIS OF SUBSAMPLES** When the sample was examined in terms of sex differences a major contrast was noted. Expectations of significant others accounted for greater task variance for female blind adolescents than for male counterparts.

It is speculated that females are more receptive to environmental demands than males; thus, their performance shows a greater correlation with environmental expectations. These sex differences were particularly apparent on behaviors related to clothes choice, extracurricular activities, eating habits, personal hygiene, housekeeping tasks, and study patterns, with females showing much more reliance on significant others' expectations than males. The only task on which both males and females performed entirely according to their own expectations were behaviors related to social interaction with the opposite sex. Another social behavior which deviated from the female compliant pattern was "phoning skills." This finding is consistent with observations of significant others who reported that females tended to use the telephone more frequently than males—a behavioral pattern not unlike that found in sighted adolescents. The findings of these two noncompliant social tasks are given in Table 2.

### Refuting the "Blind Role"

These findings tend to negate the overall prevalence of the "blind role" as the central organizing concept for the visually handicapped personality. Despite a marked tendency toward conformity in the total sample, the subsamples suggest that blind adolescents tend to assert themselves on meaningful behaviors. Also the "blind role" does not completely subsume the traditional sex differential in task performance which is generally not taken into consideration by the sighted in their conceptualization of the blind person's

performance. The findings of the study reinforce the treatise that blindness is not an all encompassing behavioral trait, but that sociocultural variables do affect the behaviors of blind people just as they affect the sighted. The recognition of these factors which account for differences within the blind population are essential before blind people can be integrated as social and business peers in the social structure.

**DISCUSSION AND IMPLICATIONS** All conclusions presented here are contingent upon the limitations of instrumentation and the exploratory nature of research design and study samples.

With these limitations in mind, this study must be regarded as a modest attempt to test role-synchrony between sighted expectations and the blind person's performance on a highly selective basis. Future studies in this general area should take into account more complex interactional situations involving variables other than expectations as predictive measures of performance.

The findings reported here give support to the "blind role" in that there is a consistent agreement between significant others' expectations, the blind child's perception of these expectations, and his actual performance. However, the sex differences related to performance along with the residential and nonresidential differences discussed elsewhere (Mayadas, 1975), do suggest that if sufficient sensitivity is exercised in discriminating between the influence of individual personality and organizational variables when interacting with the blind child, significant others can help to de-emphasize the blind role and help to develop the individualized capabilities of the blind child within the context of his social reality and physical limitations.

To the degree that the environment adjusts to the blind person's limited means of adaptation their deviance will become less conspicuous. This shifts the responsibility of perpetuating or eliminating the blind role from blind persons to the environment. If the environment is altered to fit the functioning of blind people, their inevitable dependency on a sight-centered environment would lessen.

The implications for practice suggest the establishment of a greater balance between changes in the environment and the educational and social demands placed on blind persons. For example, sophisticated technological devices could lessen reliance on visual cues and develop other modes of stimuli inputs. This would create acceptance of differences and eradicate the norm that blind people must emulate sighted behaviors in order to be socially accepted. In other words, manipulation of environment along with rehabilitation schemes for direct training of blind persons may show better outcomes in organism-environment adaptation.

**EXPLORING SOCIAL ENVIRONMENT** Rehabilitation programs may have to explore the intensity of the contact the blind child has with family members, teachers, and counselors prior to determining the nature of training schemes best suited for him. Training formats need to be built around not only the blind child's potential, but within the context of his social environment which either enhances or stifles this potential. As indicated in Table 1, performance on both social and instrumental behaviors has a significant regression on all selected predictor variables although in varying proportions. For practice this suggests that there is sufficient resilience in the behavior of the blind child to accommodate a range of expectancy demands. Thus, a number of variables in the child's environment may be



manipulated to vary that portion of performance which is predictable through expectancy contingencies. It also suggests a more extensive involvement and rigorous training of significant others in making educational and vocational plans for the blind child than is usually noted in current practice. Further, it absolves any one category of persons from being primarily responsible for the child's performance and shifts the responsibility into a shared arena. This would provide psychological and physical relief to significant others and release their energy from self- to other-oriented service considerations. For example, in the case of residential students, houseparents' expectations appeared to be crucial. This suggests that resident students' behaviors are far more manageable through houseparent expectations and can be manipulated by effecting changes in just one category of significant others. It also suggests the critical nature of houseparent selection and training (Mayadas, 1975).

In addition, sex differences found within the sample negate the concept of a unified blind role. This conclusion is based on the finding that female performance is consistently more predictable than male performance which may relate to the cultural value that assertiveness in females is less acceptable than in males.

Another interesting finding across all subsamples was that behaviors which have emotional connotations showed association primarily with no other variables but self-expectations. Specifically, this was evident on the task of interacting with the opposite sex. This suggests that there are limits beyond which the blind child, despite an apparently compliant image, will not acquiesce to environmental demands. As in the case of the aged, blind persons are often viewed as asexual (DeGrazia, 1961). Their inability to use visual cues is taken as an all-pervading disability which is extended to emotional and sociobiological functioning. More than any other aspect of the blind role, this dehumanizes the visually handicapped and places them in a category apart from the so-called "normalcy" of the sighted. Scott (1969) stresses blindness as a learned social role acquired by the blind as a survival mechanism which becomes the focal point of his life around which he patterns his interpersonal exchanges in society. The question arises: to what extent can blind persons engineer changes in their role image, and can they achieve this without the aid of the sighted? (Erikson, 1973.) Social-psychological theories of interaction (Sullivan, 1963; Thibault & Kelly, 1959), as well as empirical investigations (Biddle & Thomas, 1967), have leaned heavily toward viewing performance as a variable dependent on environmental expectancies. It is the authors' contention that these are interdependent variables and, as such, over time a change in performance can alter expectations. This speculation suggests the need for concurrent and intensive training of social service personnel and significant others associated with blind persons, along with improvement in rehabilitation programs and direct training of the blind. The attitude of the general public will remain unchanged unless a concerted effort is made in this direction. This effort has to begin with persons directly involved in blind-sighted encounters. No longer can "sheltered workshops" and "blind schools" afford to isolate blind people under the guise of protection. Integration has to start at an early age. This may mean certain environmental modifications on the part of the sighted to accommodate the blind. However, at a period in history where "social deviants" are fighting and gaining ground, the rights of the "accidental deviants" cannot go unrecognized. ■

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# Rural Mobility for Blind Persons

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Instruction in orientation and mobility is designed to enable blind people to travel independently in any environment they are likely to encounter. While success has been attained in this endeavor for the relatively large number of blind individuals who are urban dwellers, little attention has been given to the special needs of those who live in rural areas. Some mobility programs include work in areas which are referred to as rural, but in reality most of these places are suburban areas which lack sidewalks and curbs. The most common rural environments are such places as farms and country homes, but there are other locations, such as cabin sites at lakes and camping areas. Since rural environments differ considerably from urban ones, some of the methods needed by blind persons in rural areas also differ.

The most obvious difference between urban and rural areas with regard to mobility is the absence in rural areas of convenient guidelines, such as sidewalks and streets, to facilitate the maintenance of orientation. A farm, for instance, typically contains a number of buildings which are separated from each other by open spaces of varying distances. To traverse these relatively large open areas without becoming disoriented may at first appear to be a formidable if not impossible task. In reality it would be difficult to find a farm which would present serious travel problems to a capable blind traveler who is familiar with the appropriate techniques.

**CROSSING OPEN AREAS** A blind person who wishes to travel across an open area from one place to another needs to be concerned with three basic phases of travel, each of which requires an understanding of various skills. First, he needs to use some method of aligning himself in order to be sure he will start out in the correct direction. Second, he needs to be acquainted with the methods for remaining on the proper course and for making the necessary correction in the event that he deviates from it. Third, if he deviates from the proper course and fails to make the necessary correction, so missing his destination, he needs to be able to make the recovery by identifying the type of mistake he has made and adjusting his course accordingly. The specific techniques that are employed for each of the three basic phases of travel vary greatly from route to route and are dictated by the distances, terrain, landmarks, and other features found on each particular route.

When the blind traveler's starting point is a building and he is at a wall which faces his destination, he can square off by bringing his back to the wall at a specific place, thus aligning himself. Not only walls, but any stationary objects that form straight lines, such as fences, fuel tanks, water tanks, and some hedges, can be used for squaring off. When the traveler is coming from inside the building, he may align himself by bringing his hands to the two sides of the door frame. Or he may prefer to square off with a step, if one is present, by properly positioning his feet. When he is at a wall parallel to the desired line of travel to his objective, he can take a direction from it by trailing it with his hand as he moves toward the destination. If he is starting out very close to the corner and therefore is unable to trail the wall for a sufficient distance, he can take a direction by standing in one place and moving his hand forward and backward along the wall. After either of these methods has been employed, an imaginary line projected straight ahead from his body is parallel to the wall at his side. After he has squared off or taken a direction, the destination is either directly in front of him or in front of him and somewhat off to one side. If it is off

**Abstract:** *Rural areas, because of their comparative lack of convenient guidelines, require that blind persons employ somewhat different travel methods from those used in urban situations. The ways in which natural and man-made features of the environment, as well as other clues, can be used for confident travel are discussed, and suggestions for teaching mobility in rural areas are presented.*



to one side, which usually is the case, he needs to turn enough to be facing the destination. Making the required turn with consistent accuracy is a skill which can be learned readily with practice; it is an important skill which is used in many situations, some of which will be mentioned later.

If the destination is a wide object, such as a large barn or a long fence, and the distance between it and the starting point is not particularly great, the traveler can reach it consistently by simply utilizing an appropriate alignment technique and by concentrating on proceeding in a straight line. However, if the distance to be traveled is relatively far, or if the object to be reached is small, a straight line of travel cannot always be depended upon to bring the traveler to his destination. In this case, it is helpful for him to use clues along the route which can indicate whether he is on his proper course or is veering from it.

### Clues That Help in Maintaining Course

The clues which may be used during this second phase of travel are of many different types. A noticeable path or rut which runs in the desired direction can often be used to good advantage. If it runs only part of the way to the destination, and the remaining distance is still rather long, it may be possible to find another rut which leads closer to the goal. When the second rut is a continuation of the first one, which has been interrupted by an area where it is not discernable, the traveler should be able to find it by continuing straight ahead until he knows he has gone far enough to reach it. If his feet do not detect it, he can locate it by sweeping his cane across the ground in front of him. When the second rut is a different one, he may need to turn in order to make his course intersect it.

Sometimes a long rut goes past a building, instead of directly to it. To locate such a building, the traveler must turn toward it at the place where the rut is closest to it. It may be possible for him to determine the place to turn by recognizing an irregularity in the rut, such as a narrowing or widening, an incline or decline, or the appearance of stones or sand. If the destination is near the rut, it may be possible to detect it by means of auditory object perception.

Other features of the environment, such as hedges, fences, and the shorelines of driveways, can be used as guidelines if they lead in the direction of the objective. Like ruts, these guidelines usually have irregularities which indicate to the traveler where he needs to turn. Occasionally, a slope can also be used as a guideline. The best slopes are those which are no more than a few feet from top to bottom but extend a fairly long distance. The traveler can walk along the side of the slope by making sure that one foot remains higher than the other.

When a traveler walks across an open area which lacks guidelines, he soon learns to judge fairly accurately the distance which needs to be traversed before he reaches his destination. If he misses his destination and begins to walk past it, it should become apparent to him that he has gone too far, and therefore needs to use the phase three skills to recover from veering. In most cases, he can ascertain rather easily whether he has veered to the right or to the left if he is familiar with the areas on both sides of the destination, for the terrain and objects encountered in the two places would be different. The area on the left may slope while the other side is level, or one side may have a steeper slope. One side may have grass while the other has tall weeds or the dry stalks of the previous summer's weeds, or a fence or bushes may be found on one side but not the other. Objects

encountered can also indicate the magnitude of the veer. For example, if the traveler has veered slightly to the right of his objective, he may come to a fir tree; if he has veered farther, he may reach a wire fence, while if he has veered still farther, he may encounter an abandoned plow. Clues such as these can convey a great deal of information to the blind traveler who has learned to recognize them and interpret them properly. Obviously, the traveler needs to employ the skills related to this third phase of travel only on those occasions when he misses his objective. In most cases, he will be able to travel directly to his goal.

The preceding paragraphs have described the three phases of rural travel and have given examples of some of the principles by which a blind traveler can master each. Numerous other clues and techniques can also be used to facilitate proficient travel in this type of environment. Many of these clues and techniques can be useful in two, or even all three, of the phases of travel.

### Type of Terrain

The type of terrain which the traveler walks on can provide him with a great deal of information. Since he can easily distinguish between grass, gravel, sand, packed soil, and soft soil, he can often judge whether or not he is on the right course by observing the surface underfoot. If he is walking on gravel and there is grass to his left, obviously the discovery of grass would mean he has veered to his left. Likewise, if he is walking on a path of packed soil, with soft soil on each side, he can stay on the path by staying on the hard surface. Fortuitous variations in terrain, such as a patch of sand or a slight mound or depression, can indicate to him that he has veered if he knows he would miss them if he were on the proper course.

It has already been explained that lateral slopes (slopes which are higher at one side of the person than the other side) can be used as guidelines and can indicate to the traveler that he is off course. An example is a situation in which the land slopes down on both sides of the route to the objective. In this situation, a down slope to the left indicates the traveler has veered in that direction, while veering in the opposite direction is indicated by a down slope to the right. A slope which is perpendicular to the traveler's line of travel, which will be referred to here as an incline or a decline, may lie to one side of the traveler's course. If he encounters such a slope, he knows he has veered. It might seem that an incline or decline would not be helpful if it is on the traveler's course and extends to both sides, but irregularities might be found in the slope which could make it very helpful indeed. Differences in the total increase or decrease in elevation or in steepness at different places in the slope could indicate to the traveler whether he is on the proper course or off to one side.

It has been explained above that many clues can give information to the traveler if he veers and misses his objective. Clues of this type can also indicate to him that he is veering before he has gone far enough to reach his goal. For example, if he encounters a stationary object, such as a tree stump or utility pole, which is at his left when he is on the correct course, he knows he needs to turn somewhat to the right to reach his objective. If the object has straight lines, such as a building or fence, he can use it to establish his line of travel from his present position to the destination; otherwise, he needs to maintain his direction when he encounters the object and estimate the turn necessary to reestablish his proper course.



**“... features of the environment, such as hedges, fences, and the shorelines of driveways, can be used as guidelines if they lead in the direction of the objective.”**

When the traveler walks toward the corner of a building, he may come either to the wall to the right or to the left of the corner. He can easily ascertain which wall he has reached by noting its angle, for if it is the wall to the right of the corner, the wall will be closer to him on his left side; conversely, if he has located the wall to the left of the corner, it will obviously be closer to his right side. Sometimes different walls of a building can be recognized by differences in their exteriors, such as different types of siding or the presence of vertical strips on some walls. Also, different sections of the same wall may have different exteriors. If the west half of a wall is constructed of cement blocks and the east of wood, a traveler reaching the wood portion of the wall knows that he needs to turn west to find a door in the cement block portion of the wall.

**AUDITORY CLUES** Auditory clues are usually not constant and therefore the traveler should not rely exclusively upon them to reach his destination. However, when they are available, they can help the traveler to move with increased confidence and can reduce or eliminate veering in many situations. Obviously, if the sound source is at the objective, the traveler needs simply to walk toward the sound. But if the sound source is at the side of the objective, the traveler should observe its location and turn the appropriate number of degrees to the side of it in order to face the objective. As he travels forward, the angle formed by the course to his objective and a line to the sound source gradually increases so that the location of the sound continuously shifts farther to the traveler's side. If the sound source is at the side of a straight line to the destination but not as far away, the traveler walks past it on his way to his objective. As he advances, he reaches a certain point where the sound source is directly at his side. At that point, he should be able to judge whether or not it is approximately the right distance away. If it is too close or too far away, he knows he has veered.

Some sounds which can be useful are those from a fan, feeder, windmill, pump, or even the wind blowing through a tree. Different types of trees, incidently, can often be identified because of the different sounds which they make in the wind. When confined in small areas, animals also can provide relatively specific sound sources. Examples are animals in a building or a dog which is tied up. If a building has one open door or a window, sounds from the animals inside seem to come directly from the opening. On the other hand, sounds from a general area, such as a highway or barnyard, are less helpful.

### **Farm Smells**

Various buildings and areas of a farm have characteristic smells, which can give the traveler information about his location. Some of the olfactory clues which can be useful are the smells of hay, straw, a barnyard, corn in a crib, flowers, evergreens, and manure. Since the manure of each type of

animal has its own unique smell, the barn, hog house, and the chicken coop can each be identified by its olfactory clue. Since it is not possible to determine the origin of a smell, it cannot usually indicate to the traveler the direction of its source, but it can provide general information. An exception to this rule is a situation in which a smell is carried by the wind. In this case, of course, the source of the smell is in the direction from which the wind is blowing. It must be remembered that when the wind is present, smells upwind which normally are not detected because of their distance, are often noticed readily while smells downwind which ordinarily are detected easily are blown away from the traveler and may not be detected at all.

The wind itself, if its direction appears to be relatively constant, can be used as an aid to orientation. If the traveler notes the direction of the wind as he starts out, he can use it to determine the approximate direction he is facing if he subsequently becomes disoriented. However, since the wind frequently changes direction during the day, not much reliance should be placed on it unless its direction has been observed recently.

The wind can also indicate the presence of buildings if the buildings are between the traveler and the direction from which the wind is blowing. When the traveler walks by such a building, he should notice a considerable decrease in the intensity of the wind, and likewise, when he is past it, should observe that the former intensity of the wind suddenly resumes.

When the sky is clear, the traveler can determine the location of the sun by noting the warmth of the sunshine on his skin. If he knows the direction of the sun during the different parts of the day, he can quickly deduce what direction he is facing. Also, shadows may provide clues concerning the location of buildings or trees.

### **Trees as Directional Indicators**

Trees, because of the cylindrical shape of their trunks, might appear to be poor directional indicators. Closer examination, however, reveals that variation in branches, bark, and root configuration, as well as the position of the trunks, can provide surprisingly accurate directional information. The traveler can align himself by using two tree trunks if they are sufficiently close together to permit him to bring his shoulders in contact with both of them. By squaring off in this way, he can easily determine his direction and establish the course to his objective. If the trunks are somewhat farther apart, he may still be able to square off with them by extending his arms to his side so they form a straight line with his shoulders, and moving so the back of his arms or hands touch the trunks. When the distance is slightly too great to permit the use of this method, he can increase the reach of one arm by holding his cane out to the side.

Sometimes it is advisable for the traveler to align himself in such a way that the direction which he faces is approximately parallel to an imaginary line between the two tree trunks. One method requires that he hold his cane in a horizontal position and bring it in contact with both trees. He then holds it against the trees with one hand and takes a direction from the cane with the other. Sometimes a single tree can also be used for direction taking. If a branch is in a convenient position, the traveler may be able to grasp the branch and walk away from the trunk, sliding his hand along the branch as he goes. In this way, he can take a direction from the branch, much as he would from a wall.



Sometimes tree roots can be distinguished that are parallel to a particular direction of travel. Proper alignment can be accomplished by placing the side of the foot carefully against the root. Similarly, when two small tree trunks are only a few inches apart, a direction can be established when the outside of one foot is brought against both trees.

In areas that have numerous trees, it is sometimes necessary or desirable to use a series of trees in a single route. The traveler may be able to move from one tree or cluster of trees to the next until he reaches his destination.

Before instruction is given to a blind student in the principles and techniques for rural mobility, he should attain certain basic skills, such as the proper use of the touch technique and the ability to walk a reasonably straight line and to make accurate turns. The student who has successfully completed the unit in residential travel should be ready for rural mobility.

Careful attention should be given to any remaining vision, as it may be of considerable aid to the student and may obviate the need for many of the methods which have been described. If he can see the outlines of nearby buildings and trees, he can use them to maintain his orientation and may not need to rely on tactual clues such as shorelines and ruts. Of course, consideration must also be given to the student's vision at night.

**METHOD OF INSTRUCTION** For students with little or no vision, instruction should begin with verbal familiarization with the layout of the farm or other area. The instructor briefly describes the buildings and other significant objects and explains their general location. While the student is aligned with a building or other landmark, the instructor explains the locations of other buildings and features of the area in relation to the student. He may say that an object is 30 degrees to the left, or he may employ the clock positions by saying it is at eleven o'clock. If the student finds it difficult to comprehend these positions, the instruc-

tor can make them clearer by walking to the objects and giving voice clues.

Next, the instructor and the student traverse a route together, walking at the student's normal pace. At this time the appropriate skills and techniques are demonstrated. It is important to supplement verbal descriptions with the opportunity for tactual examination during this familiarization, for the student may otherwise fail to form an accurate mental image of some objects. For example, if a fence is made of logs, he may mistake it for a fallen tree if he was expecting a wire fence. The instructor should simulate veering to each side while traveling the route in order to show the student what he will reach if he fails to maintain his proper course. When the student is able to travel to the destination without help, he should be taught the return route in the same way. It should be noted that in rural areas, returning from the original destination often cannot be accomplished by simply reversing the original route. When the first route has been mastered, others are taught until he can travel to all important objectives in the area.

Since a trained instructor will probably not be available to help the student become familiar with a new area, the student should be able to get the necessary information from a friend or relative. He must ask his guide the right questions and tell him what routes he wants to be shown. The instructor can provide good practice in these skills by assuming the role of a layman and allowing the student to take the initiative in learning to travel to a new destination.

The techniques and clues which have been described here are those which are of primary importance in most rural situations, but many others also may be of aid in certain places. Since every rural area is unique, it is necessary to examine it carefully to determine the most effective methods to be used in that particular place. By observing and making use of the abundance of information which is available, a blind person can travel with confidence and proficiency in nearly any rural setting. ■

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## Arts Accessible to Everyone

All too often art programs and facilities are inaccessible to young, elderly, and handicapped persons. To open our cultural resources to these populations, the National Endowment for the Arts and Educational Facilities Laboratories have launched a nationwide information campaign to improve accessibility to the arts.

The campaign will include a series of three public service commercials to awaken public awareness, a model survey of accessible arts facilities in one state, a free consumer-demand information service that will continuously supply enrolled members with the materials they need to improve accessibility to the arts, and a free pamphlet titled, *We're pleased that you are interested in making the arts accessible to everyone*. . . . The pamphlet contains information about new art programs and facilities that have overcome barriers to children, elderly, and handicapped persons, and a list of resource organizations and materials. For more information contact: Arts and the Handicapped Information Service, Box 2040, Grand Central Station, New York, N.Y. 10017.

## Dog's Best Friend

The film studio that produced "Won Ton Ton, the Dog that Saved Hollywood" wanted to fly its canine star from premiere to premiere across the country in a first-class seat. It was discovered, however, that airlines do not allow large dogs in the passenger section of planes unless they are dog guides for blind persons. The studio solved this dilemma by hiring a blind man to escort the dog.

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## Marijuana Eye Drops

It has long been known that marijuana (through its active ingredient THC) can reduce the intraocular pressure associated with glaucoma, one of the leading causes of blindness in this country. Recent experiments conducted with animals by Keith Green at the Medical College of Georgia, Augusta, have indicated that marijuana eye drops may be the most effective method of treating glaucoma. One drug firm has already applied to the Food and Drug Administration for permission to begin testing the treatment on human volunteers. The volunteers will be in for a high time since marijuana reaches the bloodstream and brain quickly when administered by eye drops.

# An Electronically Generated Audio Display for the Blind

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RONALD C. FISH, B.A.

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**Abstract:** *The development of a system capable of generating sequences of sounds describing patterns which can be interpreted by the user with as little as 35 minutes' training has possible application as a computer graphics terminal for the blind. The generating display system is described and results tabulated on experimental testing of eight subjects' ability to identify specific patterns.*

In a series of experiments a display generating system was programmed to present the patterns shown in Fig. 1 in the form of sound. Listeners were instructed to imagine that a dot or sound source was moving about in front of them. The vertical location of the dot was made known by the frequency of the tone presented through binaural headphones. The ratio-of-sound amplitudes presented to the ears signaled the horizontal position of the dot at all times. The dot was moved about, tracing the shapes at any desired velocity. This was accomplished by varying the frequency of the tone and the sound amplitudes presented to each ear.

**THE AUDIO CODE** Higher frequencies were used to represent higher positions in the pattern. It has been shown experimentally (Roffler, 1967; Roffler and Butler, 1968 a, b) that sine-waves of different frequencies played from a single fixed loudspeaker seem to come from various heights. The higher the frequency of the tone, the higher the perceived location. This holds true for tones below 7,000 Hz which do not have higher frequency components. Incorrect localization of tones according to frequency occurs in blind and sighted adults, and in children who do not know the meaning of the words high and low pitch. Thus, coding height by frequency takes advantage of the way sound source location is thought to be normally perceived. The ear recognizes (approximately) the logarithm of frequency. Thus, to make the frequency *seem* to vary linearly with vertical position, the frequency was varied exponentially. A diode-function generator was used to accomplish frequency variance.

The left-right, or horizontal, position of the dot was made apparent to the subject by changing the amplitude of sound played to each headphone. When the dot was near the left, the amplitude of sound in the left headphone was louder than that in the right; when near the right, the right headphone had the louder sound. The ear responds (approximately) logarithmically to sound amplitude, so again the variations were exponential in nature. These functions are chosen in such a way as to satisfy two conditions. First, the total amplitude of sound heard by the listener is approximately constant regardless of horizontal position. Second, the ratio of left volume to right volume at all points follows the form shown in Fig. 2. The second criterion was determined by comparing apparent position versus loudness ratios in previous experiments (Fish, 1972).

## The Moving Dot

Words cannot adequately describe how the audio code sounds, and the following description must suffice. Pattern 31 of Fig. 1 was presented in 3.5 seconds. The dot could have started anywhere, but the center of the pattern was chosen. The tone presented to the subject initially had a medium frequency (810 Hz). It seemed to come from the center (with respect to left and right) because it was of equal amplitude in each earphone. The dot moved up and to the right. Therefore, the frequency of the tone increased as the tone became louder in the right earphone and softer in the left earphone; continuing until the top of the pattern was reached, at which point the frequency began decreasing while the left to right progression continued. The dot continued in a clockwise direction around the right loop of the pattern and ended in the center. It then traced the left hand loop in a counterclockwise direction, ending in the center. During this entire time the tone was being turned on and off at a rate of 20 times a second with a 50 percent



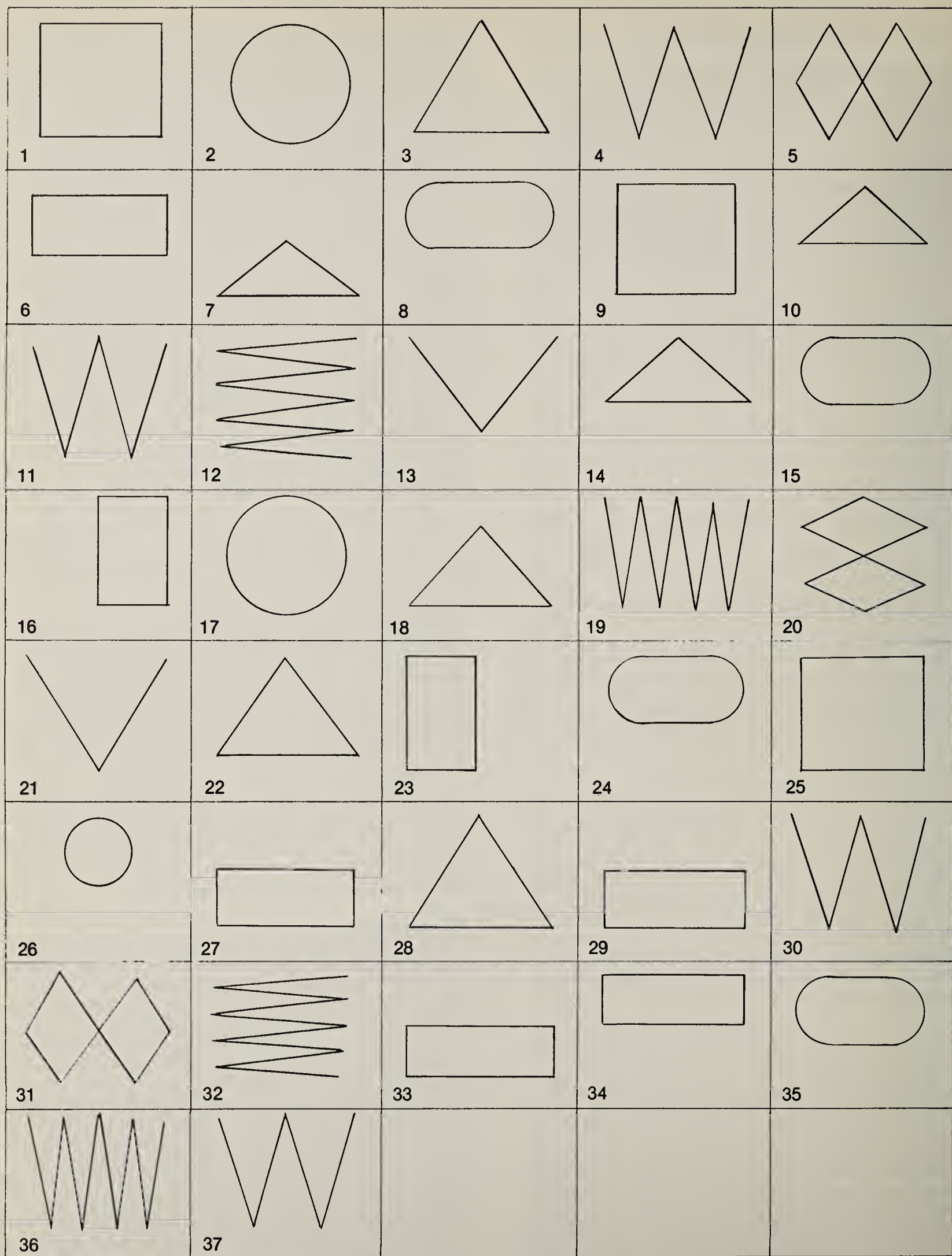


Figure 1. Test patterns in electronically generated audio display.

duty cycle. The rise and fall times of the tone burst envelopes were both 1 ms.

Many of the patterns shown in Fig. 1 consist of a single loop. These were presented by tracing around their perimeters in a clockwise fashion. The starting point for the rectangles, squares, and triangles was the bottom left-hand corner. The starting point for the ovals and circles was halfway up the pattern on the left hand edge. The ovals and circles were actually 16-segment approximations to the ideal shapes. The V- and W-type patterns were also begun at their left edges.

Additional features of the equipment made it possible to: 1) Turn the tone on and off at a fixed rate. 2) Turn the tone off during certain parts of the pattern. 3) Vary the amplitude of the tone continuously during the pattern. 4) Provide echo or reverberation during all of the pattern or during selected parts of it. Items 3 and 4 allowed the creation of a sense of depth, or a third dimension, during parts of the display.

**THE RASTER SCAN** The display used in these experiments differs from that used in previous work (Fish, 1973), in which a pattern to be presented was scanned with a raster scan. This scan went across the pattern from left to right and from top to bottom, much as one reads a page of print. The tone would be turned on when the scan was on the pattern, or when crossing the edge of the pattern. The scanning was done using a flying spot scanner system or a TV camera (Fish and Beschle, 1973). Using a TV camera coupled to the audio display as a mobility aid in a simple laboratory environment, blind and blindfolded persons

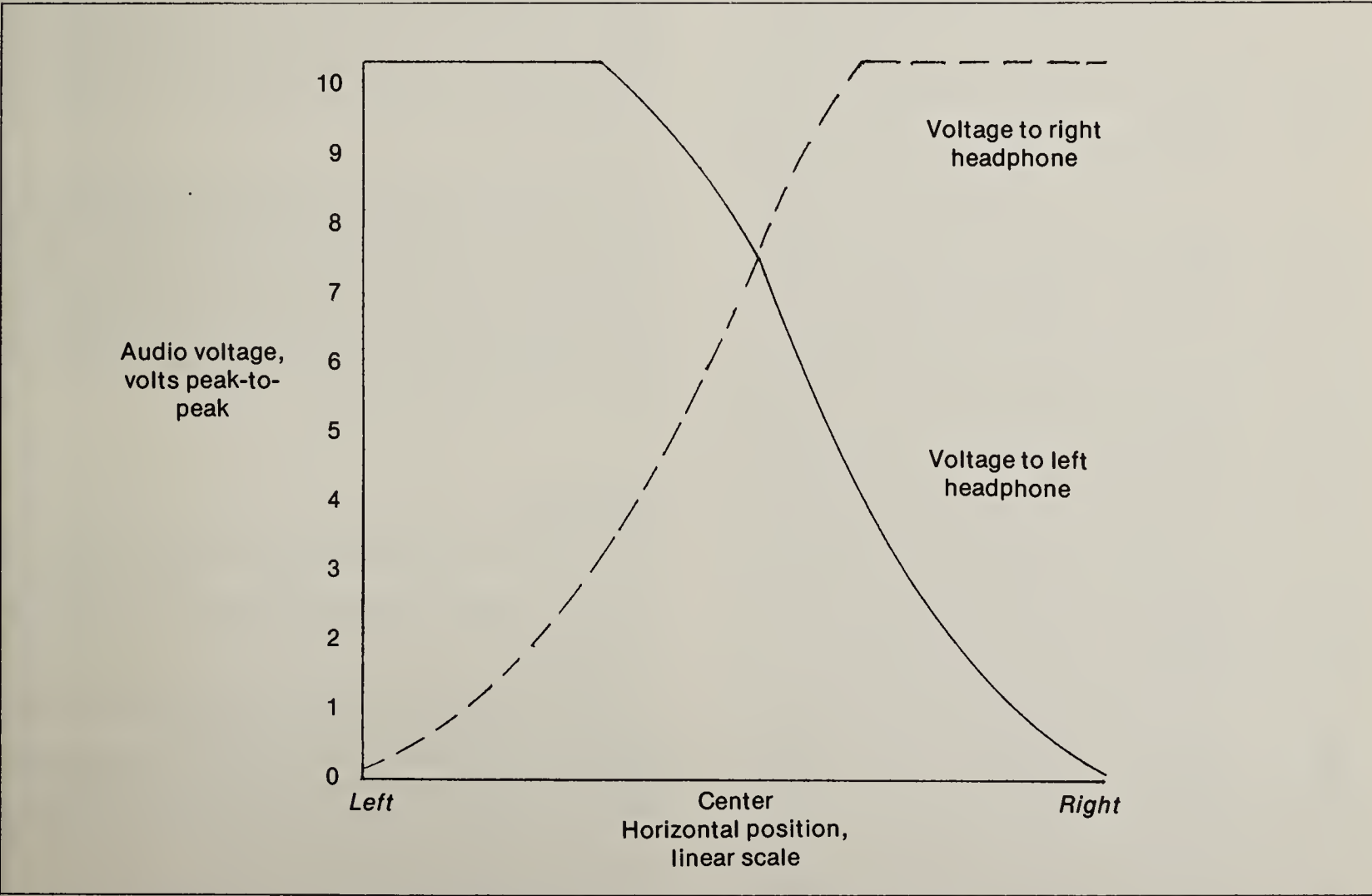
were able to find objects and navigate between obstacles with just 20 minutes' training.

**EXPERIMENTAL PROCEDURES** After listening to a 35-minute training tape, subjects were tested on the patterns in Fig. 1. The training tape contained the same patterns as the test tape, but in a very different order. In testing, subjects were allowed to hear the pattern as many times as they wished before making an identifying decision. They were then required to draw the patterns. Although some of the patterns differed in size (2 versus 26) or differed in location in space, (7 and 10), listeners were required only to give display shape and pattern orientation. Table 1 gives information and identifying results.

The eight subjects were sighted and between the ages of 16 and 53. In past experiments we were unable to detect any differences in identification performance between blind and sighted subjects (Fish and Beschle, 1973). The pretest training was minimal, to establish that the code was easy to learn. Only two of the eight subjects had had previous experience with the audio code. The other six had listened to the 35-minute training tape once. In view of the short training period and the large number of test patterns, it is believed that subjects did not memorize sound sequences, but learned to interpret shapes and to understand the movements of the dots.

**Experimental Results**

Table 1 presents data on subjects' ability to recognize patterns presented at different speeds. In addition, the effect on intelligibility when chopped audio tone was employed may be examined.



**Figure 2. Variance of sound amplitude in each ear as a function of horizontal position.**



# Audio Display

The fastest presentation time for several patterns probably lies between 0.5 and 3.5 seconds. Square (1, 9, 25), circle (2, 17, 26), and triangle (3, 7, 10, 14, 18, 28) patterns were identified correctly by significantly more listeners when presented in 3.5 seconds than when presented in 0.5 seconds.

In the raster scan format (Fish and Beschle, 1973), the minimum understandable presentation time for the square, circle, and triangle was between 1 and 2 seconds. In comparing the two systems it is apparent that identification requires approximately the same times. A factor of fourfold difference in minimum presentation times would probably change as subjects were given more training. Therefore the comparison is approximate.

To some subjects chopped tones (rapidly switching the sound on and off) made the patterns more intelligible. A number of patterns (5 and 31, 9 and 25, 29 and 33, 12 and 32, 13 and 21, 11 and 37, 10 and 14, 7 and 18, and 19 and 36) were presented twice; once chopped at a 20-Hz rate, and once not chopped. In the first three pairs, patterns with the continuous tones were identified more often. In the next three pairs, the patterns with the discontinuous tones were identified more often. In the last three pairs, it made no difference whether the tone was continuous or discontinuous. Therefore, chopping did not significantly change the intelligibility of the patterns.

## Conclusions

The experiments described here show that various methods of scanning patterns (other than the raster format) lead to intelligible audio codes. Further there are certain patterns which are more easily understood than others. Also demonstrated was the fact that effects of chopping the audio signal were insignificant. A possible application of this type of audio display would be in a computer graphics terminal for the blind. ■

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**Table 1: Audio display test patterns responses.**

Pattern	Display Duration (seconds)	Correct Identifications	Continuous Tone	Chopped Tone
1	3.5	8		x
2	3.5	2		x
3	3.5	6		x
4	3.5	7		x
5	3.5	5	x	
6	0.5	2	x	
7	0.5	2		x
8	3.5	2		x
9	0.5	0		x
10	0.5	3	x	
11	0.5	4		x
12	3.5	1	x	
13	0.5	3	x	
14	0.5	3		x
15	0.5	2		x
16	3.5	3		x
17	0.5	1		x
18	0.5	2	x	
19	3.5	5		x
20	3.5	5		x
21	0.5	5		x
22	0.5	1		x
23	3.5	1		x
24	3.5	3		x
25	0.5	1	x	
26	3.5	5		x
27	3.5	2		x
28	0.5	4	x	
29	0.5	1	x	
30	3.5	7	x	
31	3.5	4		x
32	3.5	4		x
33	0.5	0		x
34	3.5	3		x
35	0.5	4		x
36	3.5	5	x	
37	0.5	2	x	

# Rehabilitation Teachers —Who Are We?

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"One of the interesting developments of the past fifty years has been the emergence of a whole series of helping professions in addition to the very old ones such as medicine, teaching, and the clergy. This new group of professions is especially concerned with assisting people in one way or another to cope with the increasing complexities of life and to achieve a measure of personal fulfillment" (Combs, 1965). Among the most remarkable of these developments has been the creation of a wide range of social rehabilitative services with numerous allied professions, such as: counseling, social work, occupational therapy, physical therapy, and rehabilitation—which itself encompasses vocational counseling, orientation and mobility, rehabilitation teaching, and vocational placement, among other things.

A prolonged debate is being conducted as to whether the rehabilitation teacher of the blind is an "educator," "social worker," or "rehabilitator." This paper aims to identify rehabilitation teaching of the blind as an independent profession—not as a discipline within any allied profession. This paper compares and contrasts rehabilitation teaching of the blind with the carefully defined allied professions: orientation and mobility, social work, vocational guidance and counseling, occupational therapy, and special education for the blind. (Throughout this paper "rehabilitation teacher" means "rehabilitation teacher of the blind.")

## **HISTORY OF REHABILITATION**

Home teaching of blind persons started in the mid-1850's in London, England, where the Home Teaching and Visiting Society of London was founded to seek out blind persons and teach them to read. (Reading was accomplished by Moon Type, invented by Dr. William Moon. His system of embossed print can be read tactually.) William Cooper was the first home teacher and during his first year of employment he served 71 persons. (Up to the 1960's, rehabilitation teachers were still known as "home teachers.")

In the United States, many administrators of schools for the blind recognized the need to serve adults, who constituted the largest group of blind persons. In 1882, Frank Battles, assistant superintendent at the School for the Blind in Philadelphia, met with Dr. Moon and arranged for him to come to Philadelphia to discuss how to serve blind adults in the area. An organization was established for instruction in Moon Type reading and for maintaining a free circulating library. These services were patterned on those of the Home Teaching and Visiting Society. The city of Philadelphia thus had the first rehabilitation teacher in the United States, even though this teacher served on a voluntary basis only. Not until 1893 was a rehabilitation teacher actually paid; Connecticut may claim this honor. During the next 25 years, 21 states hired rehabilitation teachers, and the states that did not establish a home teaching program relied on the residential schools to provide a summer program for the adult blind.

During the first decades of the various rehabilitation teaching programs (1893–1940), rehabilitation teachers assumed a wide diversity of roles, including instruction in braille and saleable crafts, friendly visiting, distributing talking book machines, case finding, and determining eligibility for financial assistance. It appears that then, as now, rehabilitation teachers were assigned duties as the need arose rather than given assignments exclusively related to the area of rehabilitation teaching.

**Abstract:** *Rehabilitation teaching of blind persons employs many of the principles used in the allied professions of special education, social case work, orientation and mobility, vocational rehabilitation and guidance counseling, and occupational therapy. But the way these principles are applied, along with other highly specialized skills, serves to create the distinct profession of rehabilitation teacher of the blind.*



**REHABILITATION TEACHING** With the aim of ascertaining the method, scope, and structure needed to carry out an accreditation program in the field of work with the blind, the American Foundation for the Blind, the Department of Health, Education, and Welfare, and other concerned private foundations, set up and sponsored research by a Commission on Standards and Accreditation (COMSTAC). The COMSTAC Report (Revised, 1966) defined a rehabilitation teacher as, "A person who instructs and guides a person with visual impairment through an individualized plan of instruction designed to help him to carry out daily activities. This encompasses specific and identifiable evaluation and teaching techniques and skills to enable the visually impaired to develop and/or enhance sensory and kinesthetic capabilities, personal management skills, communication skills, home orientation and home management." By this definition, the primary responsibility of the rehabilitation teacher is to plan and provide instruction in adaptive techniques and skills, and to help in the development of coping mechanisms for the blind adult.

There are many stated purposes within the field of rehabilitation teaching. The COMSTAC Report states, "The service is designed to identify and meet the existing, emerging, and changing needs of clients and community" (p. 324). The purpose, expressed by rehabilitation teachers themselves is, "Rehabilitation teaching services to the blind person may be concentrated in a specialized area of instruction or include a wide variety, such as independent living skills, communication skills, home orientation, and social skills" (Association of Rehabilitation Teachers, 1974).

The latter purpose presents a structured framework within which the rehabilitation teacher can function. The former stated purpose, from COMSTAC, is the more commonly accepted framework. This statement of purpose is open to a wide range of interpretations of responsibilities and duties by other professions such as orientation and mobility, social work, counseling, education, or occupational therapy.

### Duties Required

To facilitate rehabilitation teaching, the following are essential requirements: The rehabilitation teacher should be a skilled instructor in pre-cane techniques; adaptive cooking techniques; menu planning; organizing kitchen and work station; shopping and marketing; identifying items; storing items; clean-up procedures; setting the table; eating techniques; serving foods; using recipes; laundering; household cleaning; making beds; grooming and personal hygiene; telling time; dialing and using a telephone; communication skills (reading, writing, oral, electronic aids, abacus); personal management; sewing; leisure activities; and home repairs and maintenance. (Instruction in these areas should include the basic and fundamental methods, techniques, and procedures; instruction is not designed to develop advanced, highly skilled persons in these areas.) In addition to the instructional areas, the rehabilitation teacher is involved with assisting the blind person to understand and cope with his handicap. The following tasks must be carried out by the rehabilitation teacher: Intake interviews; consulting with family and community members; lesson preparation; report writing; staff meetings; scheduling client contacts; handling correspondence; making public appearances; and other office duties as needed. The time available for such noninstructional duties will vary from teacher to teacher, and will be determined mainly by the work setting. For example, the rehabilitation teacher employed in a rehabilita-

tion facility will spend about 75 percent of the working day in instruction and 25 percent in noninstructional work-related activities. On the other hand, the rehabilitation teacher in the field will spend about 60 percent of the working day in noninstructional work-related activities and 40 percent in instruction. The main reason for this difference is the time required for travel within the large territory covered by field rehabilitation teachers. These percentages are based on unpublished studies which I have conducted, on personal experience, and experiences shared with other rehabilitation teachers.

**ORIENTATION AND MOBILITY** An orientation and mobility instructor of the blind is defined as, "The person ultimately responsible for a blind person regaining his ability to move about safely, efficiently, and independently in his environment. To achieve this goal, an individually designed program of instruction is initiated, which may include: orientation skills; self-protective techniques; environmental concepts; use of sensory information; use of travel aids; techniques and skills; travel in home, residential, and business areas; use of public transportation; and sufficient and appropriate practice to build confidence" (M. Corbett, personal communication, May, 1975).

The rehabilitation teacher must be able to provide the necessary instruction in the basic components of orientation and movement. This instructional area is the same as for the orientation and mobility instructor and may include: orientation skills, self-protective techniques, environmental concepts, and movement within the home and immediate surroundings.

The role of the rehabilitation teacher is to reinforce these skills which have been previously presented by an orientation and mobility instructor. However, the rehabilitation teacher must be knowledgeable in the instruction of pre-cane skills to facilitate the instruction in daily living activities. This pre-cane instruction may be necessary because of the lack of orientation and mobility instruction in the field or the lack of coordinated teamwork among the various professionals in the delivery of services.

Processes often used by both rehabilitation teachers and orientation and mobility instructors include interviewing; evaluating client needs; planning individualized programs of instruction; record keeping; and assisting the client to understand and cope with himself, his handicap, and with the public.

The overlapping instructional skill areas and the common principles are essential components of the rehabilitation process for both these professions. The principles are necessary to establish a realistic rehabilitation program based upon the client's needs and goals. The overlapping instructional skill areas are vital to a basic framework upon which additional or advanced instruction may be built.

There are, nonetheless, differences between the two professions: The orientation and mobility instructor must meet specific visual and auditory requirements; he gives instruction with a travel aid; gives instruction in one skill area only; and has a one-to-one relationship with the client.

The visual requirement for a mobility instructor is 20/40 with best correction. The auditory requirement is good hearing (i.e., not to exceed a 15 decibel loss). Rehabilitation teachers, on the other hand, do not have any visual or auditory requirements.

After the client has mastered the basic pre-cane skill areas—orientation, self-protection techniques, environmen-



**“... the primary responsibility of the rehabilitation teacher is to plan and provide instruction in adaptive techniques and skills, and to help in the development of coping mechanisms for the blind adult.”**

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tal concepts, and so on—the orientation and mobility instructor can begin a course of instruction with a travel aid, usually a long cane. This instruction requires advanced training and specialization to yield best results.

The instructional area of orientation and mobility comprises just one facet of the entire rehabilitation program. By instructing in just one skill area, the orientation and mobility instructor is able to serve more clients, examine his skill area in more depth, and develop additional techniques to assist the client (such as use of low vision function and use of low vision aids). The rehabilitation teacher, in contrast, is responsible for instruction in many skill areas within the comprehensive rehabilitation program. These include skills in daily living activities, personal management, communication skills, and recreation.

The final difference between the two professions is the recognition of a one-to-one relationship between the orientation and mobility instructor and the client. The one-to-one relationship is necessary for sufficient emphasis to be given to the client's ability to move about safely and confidently. Also, it is impossible for one instructor to observe two or more clients at once and to provide for their safety. The procedure is akin to teaching someone to drive a car. Safety is paramount, and the very nature of the task permits only one client at a time.

Orientation and mobility instructors and rehabilitation teachers are both concerned with basic professional processes, developing self-confidence, helping to develop client coping mechanisms, and using a team approach in the overlapping of instructional areas. The main difference between orientation and mobility instructors and rehabilitation teachers is the advanced training and specialization in long-cane and independent travel techniques given by the former. In short, the orientation and mobility instructor of the blind teaches one major skill area in a one-to-one relationship.

**SOCIAL CASE WORK** “The social case worker counsels and aids individuals and families requiring social service assistance; interviews client to determine the nature and degree of the problem; secures additional information such as physical, medical, educational, or vocational which may be contributing to the problem; counseling client regarding plan of action; enables client to modify attitudes and patterns of behavior by increasing understanding of himself, his problems, and his part in creating these problems; makes referrals to other professionals as needed” (Dictionary of Occupational Titles, 1965).

The rehabilitation teacher and the social case worker have many procedures in common to initiate a plan of action. This process includes interviewing, record-keeping, acting as referring agent, developing an individualized program of

action (the rehabilitation teacher's plan is for instructional purposes), and helping the client to modify his attitudes toward himself and his problems.

The social case worker is concerned with gathering information, analyzing these data, and making the necessary referrals to other professionals. Emphasis is on helping the client to overcome the problem, not on developing a method or procedure which may be used by the client to cope with future problems. The social case worker determines eligibility for financial assistance while providing a more extensive counseling service in terms of understanding self, existing problems, and the client's role in creating the problems.

The social case worker does not provide any instructional services for the client; assistance is provided to help the client identify his problem, understand it, and determine how to overcome it. To accomplish this goal, the social case worker will use information collected through interviews, records, and by other professionals. The efforts of the social case worker are directed at overcoming the immediate problem. This differs from the rehabilitation teacher who provides instruction that will develop means by which the client can overcome not only the immediate problem, but also handle problems that may occur in the future.

The social case worker is concerned with *all* of the problems of the client. These problems may include social, financial, emotional, educational, vocational, physical, or personal areas. The interviews and counseling sessions are intended to focus on the reasons for existing problems. After identifying the client's problem, a determination is made of which professional sources are needed and their assistance is enlisted. One of the available resources would be the rehabilitation teacher.

The final difference is the determination for financial assistance. The social case worker, through interviews and collection of pertinent information, is able to determine eligibility for financial assistance. This task used to be performed by rehabilitation teachers in the early stages of assistance to blind people. However, the task has been delegated to the social case workers who are qualified to make these determinations.

Both the social case worker and the rehabilitation teacher are concerned with the basic professional processes, such as interviewing and record-keeping, and helping the client to understand and cope with his handicap. After identifying the client's major problem, the appropriate referrals to professionals are made (medical, psychological, and financial, for instance). The primary difference between these professionals is that the rehabilitation teacher employs therapeutic instruction in various skills that will enable the client to cope with immediate problems and to deal effectively with future situations.

**VOCATIONAL REHABILITATION** “The vocational rehabilitation and guidance counselor counsels individuals and provides group educational and vocational guidance services; collects, organizes, and analyzes information about individuals through records, tests, interviews, and professional sources to appraise interest, aptitude, ability, and personality characteristics for vocational and/or educational planning. Assists individuals to understand and overcome social and emotional problems, assists clients in recognizing and accepting their handicap; engages in resource and follow-up activities and assists clients in vocational placement” (Dictionary of Occupational Titles, 1965).



Vocational rehabilitation and guidance counselors are concerned with the entire rehabilitation process. Some of the basic principles of a professional worker are the same for both the counselor and the rehabilitation teacher. These include interviewing, assessing individual needs, record keeping, developing an individualized program to initiate and carry out the rehabilitation process (rehabilitation teaching of the blind plan is one phase of the entire program), and utilizing community and professional resources.

Yet there are several major differences between the vocational rehabilitation and guidance counselor and the rehabilitation teacher. These differences include ultimate responsibility for the case, involvement and coordination of the entire rehabilitation plan, in-depth counseling, utilization of professional resources for data collection, and vocational placement.

The responsibility and authority for case accountability and management are delegated to the vocational rehabilitation and guidance counselor by his employing agency within the structure that is provided by the federal rehabilitation legislation.

The counselor, like the rehabilitation teacher, develops an individualized plan of action. However, the counselor's plan is for the entire rehabilitation program of a client, while the rehabilitation teacher's plan is for instruction, which is just one phase of the rehabilitation program.

The counselor needs additional information, which can be obtained through other professional sources to assist in determining and developing a rehabilitation plan. This information may include financial status, educational background, personal skills, vocational experience, physical health, and emotional stability. This information is also important to the rehabilitation teacher, but the counselor *must* have the data in order to develop an accurate and complete program of rehabilitation.

The counselor and the rehabilitation teacher are both concerned with the client's understanding, recognizing, and coping with his or her handicap. The counselor's role gives him an opportunity to assist the client beyond these stages of awareness. The counselor can provide a therapeutic setting to explore in depth the client's attitude and help the client to adjust to and ultimately accept the handicap.

### **Vocational Placement**

The remaining difference between the two professions is the counselor's involvement in vocational placement. The placement process may include employer interviews, job development, job screening, relating client's abilities and capabilities to job specifications and requirements, and preparing the client for the job market. The rehabilitation teacher may assist the counselor in the area of job readiness, but the rehabilitation teacher is concerned primarily with prevocational skills, activities of instruction and adjustment.

The vocational rehabilitation and guidance counselor is responsible for guiding and following the client through the rehabilitation, vocational, and educational processes. The rehabilitation teacher develops a program of individualized therapeutic instruction in skills for independent living during the rehabilitation phase of the client's program and provides additional or remedial instruction as needed by the client. The rehabilitation teacher is a valuable resource to the counselor as he guides and follows the client through the individualized program.

**SPECIAL EDUCATION TEACHER** "The special education teacher for the blind may teach pupils in elementary or secondary grades; evaluate a pupil's abilities in order to determine a training program that will result in maximum progress; observes pupils to determine physical limitations and/or social or emotional problems; plans academic and recreational programs to meet individual needs; devises instructional materials, methods, and aids to assist in the rehabilitation process; and plans and organizes extracurricular programs" (Definitions of Titles, 1971).

Both education and rehabilitation teachers provide instruction in personal hygiene, recreational activities, and communication skills such as braille, typing, and handwriting. In addition, both are responsible for consulting with family members and other professional staff, writing reports, planning individual programs, and developing instructional materials. Each professional is also concerned with individual progress, group interaction, and integration with the sighted community. Both professionals serve totally blind, legally blind, visually impaired, and multiply handicapped persons. Multiply handicapped refers to those persons having one or more handicaps in addition to blindness. Each professional will utilize additional resources when necessary. These resources may include medical, psychological or other professional assistance as the individual need dictates.

The differences between the special education teacher and the rehabilitation teacher lie in subject matter (academic), age of learner, and work setting.

The subject matter taught by a special education teacher is academic and concerns a total body of knowledge as well as instruction in skills. The skills taught by a rehabilitation teacher are therapeutic and help the client to adjust to the immediate crisis and prepare him to cope with future problems. The special education teacher works with persons younger than 17 years. The rehabilitation teacher works with persons aged 15 years and older (including persons who are 65 and over).

The work settings for the rehabilitation teacher and the special education teacher are different. The rehabilitation teacher usually works in the client's home, while a special education teacher usually works in a school system in a self-contained classroom, or a resource room, or as an itinerant teacher.

A more significant difference is the nature of the stress imposed on the client who is newly blinded. Stress is produced when the client lacks confidence in his ability to perform daily living tasks. The congenitally blind individual who has been overprotected also faces similar stress when thrust into a rehabilitation setting where he is expected to learn to function more independently within sighted society. In the educational setting, the major emphasis is on academics; in the rehabilitation setting the major thrust is on independent functioning within the mainstream of society.

Rehabilitation teaching through therapeutic instruction in adaptive techniques enables the learner to function with a greater degree of safety, efficiency, confidence, and independence.

The special education teacher is concerned with instructing pupils in basic rehabilitation skills; however, the major emphasis focuses on the total educational program. The rehabilitation teacher is concerned with remedial instruction, but the primary responsibility is in the therapeutic instruction of rehabilitation skills. Other differences between the two professions are the age of the pupil or client being instructed and the work setting being utilized. The



rehabilitation teacher of the blind usually works in either the client's home or in a rehabilitation facility.

**OCCUPATIONAL THERAPY** "An occupational therapist evaluates an individual's motor, tactual, and perceptual capabilities; provides instruction in perceptual motor skills, physical functioning (coordination), activities of daily living, recreation, and personal management; assists the client to develop an attitude which will foster understanding of and coping with his handicap; creates and adapts equipment and techniques which will enable the individual to increase functioning; and is concerned primarily with other disabilities besides visual loss—such as spinal cord injuries, arthritis, diabetes, emotional illness, and neurological pathologies" (J. Holland, Personal communication, May, 1975).

The rehabilitation teacher and the occupational therapist must be able to instruct in and evaluate activities of daily living skills, personal management, and recreational activities. In addition, they must be aware of the adaptive equipment and techniques used in these areas.

Training at the college level for an occupational therapist concentrates on diseases, disorders, and disabilities other than visual, and includes anatomy and physiology, kinesiology, neurology, etiology, pathology, and treatment of physical, mental, and emotional disabilities. Additional emphasis is placed on the normal life adjustment for all age groups.

The rehabilitation teacher training program at the college level concentrates on the physiology and function of the eye, etiology and pathology of eye diseases, psychological adjustment to blindness, and the application and use of adaptive techniques, skills, and equipment necessary to meet the unique problems created by blindness and visual impairment. Since tactual and auditory perception are the primary means by which a blind person explores, recognizes, and learns, the rehabilitation teacher's primary focus is on therapeutic instruction in these sensory skills. Through these sensory skills the rehabilitation teacher can provide an individualized program that will enable the learner to regain his self-confidence and independence.

The rehabilitation teacher's emphasis is on the unique problems caused by blindness. This differentiates the rehabilitation teacher from the occupational therapist. Both occupational therapists and rehabilitation teachers direct their efforts to helping the client cope with his disability and introduce adaptive techniques to realize a greater independence. The occupational therapist is highly skilled in evaluating motor, tactual, and perceptual capabilities and provides instruction in perceptual motor skills and physical functioning. The occupational therapist is concerned primarily with disabilities other than visual. The rehabilitation teacher employs adaptive techniques similar to those used by the occupational therapist, but the rehabilitation teacher is a specialist in providing therapeutic instruction to clients with visual impairments.

The team approach is essential in meeting the needs of the whole person. Any resource person who contributes relevant information that helps to design, develop, and deliver comprehensive services to the visually impaired client is a team member. The six allied professions discussed above are only some of the potential team members. Others may include the psychometrist, the county home extension agent, the physical therapist, and the work evaluator—to mention a few.

The professions discussed have been described as they *should* be utilized ideally. However, because of administra-

tive policies, erroneous job descriptions, lack of qualified personnel, insufficient numbers of personnel, misconceptions of the professional's role, and the lack of recognition of standards and guidelines set up by professions, considerable overlapping of duties and responsibilities occur. In some instances, there is a gap in certain areas of the service delivery system.

Even though this overlapping of duties and responsibilities still exists, it is the obligation of the professional worker to identify the standards and guidelines relative to his own profession; to promote unity within the professions as it pertains to the professional role; to demonstrate competency in the delivery of services; and educate other team members, supervisors, and administrators in their professional identity. It is only through the team approach that more effective services can be delivered to help the client to achieve his goals.

Through the comparisons between rehabilitation teaching and allied professions, it has been shown that rehabilitation teaching consists of highly specialized skills, knowledge, and techniques which distinguish the rehabilitation teacher from the others. These services and the system for delivery are the basis for the unique profession of rehabilitation teaching the blind. ■

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## Oxygen Therapy-RLF Still a Risk for Premature Infants

The use of even the most carefully monitored oxygen therapy to prevent brain damage in premature infants still carries a risk of causing blindness, according to a special supplement to the April 1976 issue of *Pediatrics* (American Academy of Pediatrics, 1801 Hinman Avenue, Evanston, Illinois 60204). The supplement, "History of Oxygen Therapy and Retrolental Fibroplasia," edited by L. Stanley James, M.D. and Jonathan T. Lanman, M.D., goes on to say that today, after 20 years of definitive studies linking oxygen and RLF, "The problem of oxygen therapy for premature infants is far from being solved. There appears to be no concentration of oxygen in excess of that in air that is not associated with the risk of developing RLF."



# Coupling the Output of the "Sonicguide" to the Ear of the User

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**Abstract:** *The auditory output of the "Sonicguide" (Ultrasonic Spectacles) must be delivered to the ear via a coupling tube. If a 'no-mold' fitting is used in favour of an earmold the coupling tube may not rest in the same position with successive insertions. Two experiments demonstrate that displacements of up to 8 mm in auditory coupling-tube position do not affect object location nor shorelining. Contraindications for 'no-mold' fittings are discussed.*



Figure 1. Headpiece and head rotation apparatus.

Ultrasonic spectacles have undergone extensive testing and production versions are now available. No matter how elegant the electronics of the device, the final link with the user is the coupling of the auditory output to the user's ears. This study directs its attention to the auditory coupling of the Wormald Vigilant Sonicguide, formerly known as the Binaural Sensory Aid. In the Sonicguide, as with most spectacle-mediated auditory devices, the earphone is located in the side arm of the spectacle frame and the sound is delivered to the ear through a 2 mm inside diameter soft plastic tube.

As is the case with most hearing aids, the auditory coupling tube may be held by an earmold, which holds the tube firmly in place, but presents some difficulties to the user of the Sonicguide. That an earmold partially or completely occludes the passage of sound over the pinna and into the ear canal is of no consequence to the hearing impaired. In most cases complete occlusion is necessary to stop feedback whistle and to assist low frequency transmission from the hearing aid. For the blind user, however, occlusion of hearing is of great consequence as hearing is the major teleceptor.

In early prototype trials the Sonicguide was rejected in some cases because the earmold attenuated the user's hearing, a frightening situation when hearing is so important to orientation and object perception. There are some earmolds that do not significantly attenuate hearing. The best is the open-tube skeletal earmold, a thin ring of hard acrylic which fits in the undercut of the concha with a small lug up into the lower front of the helix of the pinna. A cast is taken of the external ear to insure exact fit. However, some users dislike anything which even hints at hearing occlusion, and may be disturbed by any earmold.

**NO-MOLD FITTING** Earmold problems led Sonicguide instructors at the National Guide Dog and Mobility Training Centre, Kew, Victoria, to try a "no-mold" type fitting (tested on CROS hearing aids), which conveys sounds from one side of the head (hearing impaired side) to a normal hearing ear on the other side. This fitting is simply a bent coupling tube. A permanent bend is heat formed in the coupling tube so that the end of the tube is directed into the ear canal. The plastic used must be soft enough not to scratch or irritate the wall of the canal, but sufficiently firm so that head and body movements do not dislodge it.

Trials with this coupling on the prototype Sonicguide were encouraging. As the production model has folding arms and the power cord from the control box may be unplugged from the spectacle frame, and as the no-mold coupling has the additional advantage of being very easy to remove and insert, the whole spectacle unit is easy to take off and put on.

With the no-mold coupling there is no guarantee that the end of the tube will rest in the same position with each successive insertion, and these small displacements could alter the intensity of the sound reaching the ear. "As loudness difference between the ears codes the angle at which objects are perceived, asymmetrical changes in loudness due to changes in coupling tube position could distort the user's angular judgment with the Sonicguide." In Experiment 1 the auditory coupling tube position is systematically varied while monitoring the user's angular judgment with the aid.

Seven Sonicguide users (six male, one female) acted as subjects in Experiment 1. All used the Mark I prototype



model of the aid. The subject sat on a platform which brought viewing height slightly above that of normal standing height. A headpiece firmly adjusted to the subject's head size transferred information of head rotation via an attached vertical shaft which rotated in a bearing on a shelf above the subject. A long pointer on the vertical shaft indicated the subject's head rotation on a large (560-mm diameter) protractor on the shelf. The angle of head rotation could be read to an accuracy of 0.25 degree (Fig. 1).

A specially designed multiadjustable tripod (Fig. 2) was hung from the headband, straddling the outer ear. The auditory coupling tube clipped into an attachment on the inner end of a slide accurately adjustable by a fine screw thread. By this means the coupling tube could be accurately moved into and out of the ear canal.

The subject's task was to "center" on a 2.4-meter high pole, that is, to turn his/her head until the signals from the Sonicguide indicated that the pole was straight ahead. All subjects "bracketed" quite naturally, that is, made successively smaller excursions either side of center to ensure a bias-free judgment of centrality. The pole was placed at four distances (0.5, 1, 2, and 4 meters) from the subject's spectacles, using a 19-mm diameter pole for the 0.5 and 1.0 meter and a 44-mm diameter pole for the 2 and 4 meter distances. The pole was placed approximately 10 degrees to the left or right (randomly counterbalanced, left for two pole distances, right for the other two) rather than straight ahead, so that the subject's own proprioceptive feeling for straight ahead position was not a confounding cue to pole position.

**COUPLING TUBE INSERTIONS** Judgments of pole position were made at five coupling tube insertions. There is no accurate method for measuring the absolute depth of insertion as the irregular curvature of the ear canal entrance gives no point which may be defined as the beginning of the ear canal. However, with the tripod (Fig. 2), the insertion relative to normal depth (approximately 5 mm) could be increased and decreased accurately and the original position returned to with precision. The five insertion depths were Normal (approximately 5-mm depth); 2 mm and 4 mm IN (deeper); and 2 mm and 4 mm OUT from normal. The coupling tube in the opposite ear was held in a constant position. Four replications were made at each insertion position, thus 80 judgments were made altogether (4 replications at each of 5 insertion depths = 20 judgments for each of 4 pole distances).

Results were averaged across the four replications. The means of the 2 and 4 mm IN and OUT were subtracted from the normal position giving four final figures for each pole distance (See Table 1).

The average standard deviation across the four replications was 1.82 degrees, while the average deviation in head rotation was 0.86 degrees. This indicates that any error produced by change in coupling-tube position is less than the variability in the subject's judgment. An analysis of variance was carried out for each pole distance. The effect of coupling-tube position is less than the variability in the subject's judgment. An analysis of variance was carried out for each pole distance. The effect of coupling-tube position was not significant for all four pole distances.

### Binaural Loudness Function

Experiment 1 demonstrates that lateral displacement of coupling-tube position does not affect judgment of object

position in the median plane (centering on an object). However, as an object approaches the median plane of the spectacles there is an increase in intensity at *both* ears concomitant with changes in relative intensity at each ear. It is possible that the subjects were unconsciously using the peak of this binaural-loudness function as the cue to centrality, rather than equal loudness at each ear.

One could claim that it does not matter what signal information the user employs, provided that accurate location of objects is the result. This is correct, but the results of Experiment 1 apply only to objects which are in the median plane of the spectacles or directly "looked at" and does not apply to off center judgments as in "shorelining" where the user is looking straight ahead, but using off-center signals to maintain a direction of movement parallel to objects on one side. If the peak of binaural loudness was being unconsciously used in Experiment 1 then small interaural-loudness differences could have passed unnoticed and still affect shorelining.

**INTENSITY CHANGE** A laboratory experiment was designed as a close parallel to Experiment 1, but eliminating the binaural intensity change. The electrical output of one channel of the Sonicguide was tape recorded with the spectacles facing the same poles at the same distances and height above ground as in Experiment 1. The (single) taped signal was then delivered to Sonicguide monitor earphones via both channels of a resistive network which at the turn of one knob simultaneously lowered the intensity in one channel and raised it by the same amount in the other, thus preserving a constant binaural loudness while changing the loudness presented at each ear (Keen, 1972). The result is a change in signal identical to that which is produced by rotating the head while viewing the pole with the Sonicguide, except that binaural loudness is constant rather than increasing at the median plane. To increase centering accuracy a crossover switch was included in the circuit. At the press of a spring lever switch the left channel was directed to the right and the right to the left. A 50-msec rise and decay time in the electronic switch assured that no switching transients affected the subject's judgment.

### Channel Crossover

Ten normal-hearing subjects were used, including one Sonicguide user and one Sonicguide instructor. Results did not differ between those with Sonicguide experience and those without. The subjects were asked to center the taped Sonicguide signal by turning the adjustment knob of the resistive network described above. The crossover switch was used to facilitate accurate centering (Kikuchi, 1957; Jeffress and Blodgett, 1962). If the signal is not centered, pressing the crossover switch will move the apparent position of the signal. This movement can be minimized until a null position is reached, that is, a centered position at which the swapping of the left and right channels produces no apparent movement. Two decade attenuators, one on each channel, were adjusted to produce five interaural intensity differences while preserving constant binaural loudness. These were randomly used as starting positions and also reduced 'apparatus cues' in that the same interaural loudness was produced by different adjustment-knob rotation positions with successive judgments. The position of a 2-mm coupling tube on the monitor Sonicguide was adjusted in the same manner as in Experiment 1. Four replications at each of five coupling-tube positions for each of four taped signals



Table 1. Mean change in head rotation when centering on pole (in degrees).

		Auditory Coupling Tube Position			
		4mm IN	2mm IN	2mm OUT	4mm OUT
Pole Distance	0.5M	+0.2 (1.0)	−0.6 (1.0)	−0.2 (0.3)	−0.2 (0.6)
	1M	+0.9 (1.2)	+0.3 (0.7)	−0.9 (1.1)	−0.7 (1.8)
	2M	0.0 (0.6)	+0.5 (0.9)	+0.1 (0.7)	+0.3 (1.3)
	4M	−0.5 (1.0)	−0.3 (0.5)	+0.2 (0.7)	−0.1 (0.8)

+ is clockwise rotation  
- is counterclockwise rotation  
Standard deviation is in parentheses

Table 2. Mean change in intensity delivered to variably inserted auditory coupling tube (expressed in dB).

Pole Distance	Auditory Coupling Tube Position				
	4mm IN	2mm IN	2mm OUT	4mm OUT	
	0.5M	−0.1 (0.2)	0.0 (0.3)	0.0 (0.3)	+0.1 (0.2)
	1M	0.0 (0.2)	−0.1 (0.1)	0.0 (0.2)	0.0 (0.2)
	2M	+0.2 (0.3)	+0.2 (0.2)	+0.1 (0.2)	+0.2 (0.2)
	4M	+0.1 (0.4)	+0.1 (0.3)	+0.1 (0.3)	0.0 (0.3)

+ is clockwise rotation  
- is counterclockwise rotation  
Standard deviation is in parentheses

replicated the design of Experiment 1. The subject's response was measured in dB intensity delivered to the coupling tube whose insertion was varied. Results were processed in the same manner as for Experiment 1 and are presented in Table 2. The average standard deviation across the four replications was 0.29 dB while the average deviation from normal-insertion setting was 0.20 dB, indicating again that error produced by change in coupling-tube position is less than the variability in the subject's judgment.

**RESPONSE DIFFERENCE** An analysis of variance performed for each tape revealed one significant difference. Of the 24 comparisons in the analysis, one, the largest coupling-tube movement (4 mm IN to 4 mm OUT) for the 0.5-meter pole distance produced a significant difference in response (at 5 percent confidence level). The mean difference in judgment was 0.22 dB from this 8-mm change in coupling-tube position, which is equal to the confidence interval for that analysis (0.22 dB) and represents 0.44-dB interaural intensity difference. Although this difference may be statistically significant, it represents a very small angular shift in judgment with the Sonicguide. It is of little consequence to successful use of the aid for the following reasons:

1. At 0.5 meter most objects subtend a large angle, this obviating accurate angular location.
2. The 0.5 meter distance section of a shoreline would be about 90 degrees to the direction of motion. At that angle the signal would be presented to one ear only.

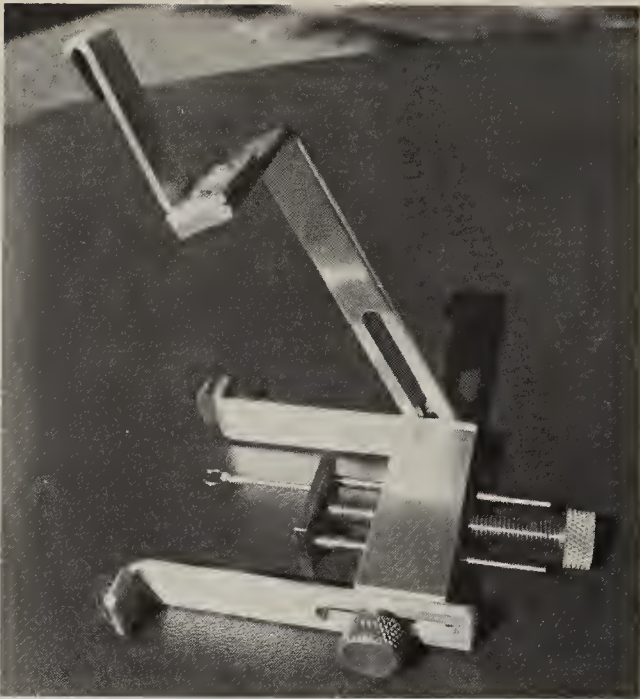


Figure 2. Tripod used to vary coupling tube position. The crook which held the coupling tube may be seen at the inner end of the adjustment screw.

3. With many subjects it was difficult to insert the coupling tube to the deepest position. It is, therefore, unlikely that there would be an 8-mm difference in coupling-tube position with successive insertions in normal use.

The second experiment confirms the results of Experiment 1 and indicates that "... displacement in coupling-tube position does not affect shorelining."

**COMFORT AND ACOUSTICAL SUITABILITY** The 'no-mold' or thermal-molded bent soft-tube coupling has proved to be acoustically suitable for coupling the output of the Sonicguide to the user's ear. Displacements in tube position do not significantly affect judgment with the aid. Moreover this type of coupling presents the least occlusion to normal hearing and is removed and replaced with ease.

Although this form of coupling appears ideal it is contraindicated in some cases, such as when the distance to the first turn of the ear canal is too short to provide a stable location for the tube. Some users' ear canals are hypersensitive to touch and the firmly held tube of the skeletal earmold fitting is far less irritating than a loose tube. Some simply find more security in the firmly held earmold fitting. Earmolds do provide real security in that they act as emergency retainers, preventing the spectacles from falling off if they are accidentally shaken or bumped from their normal position. For most users, however, the easily inserted, nonoccluding, no-mold fitting should be suitable both for comfort and acoustic considerations. ■

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# MEASURES OF PSYCHOLOGICAL, VOCATIONAL, & EDUCATIONAL FUNCTIONING IN THE BLIND & VISUALLY HANDICAPPED

**Geraldine Scholl**  
**Ronald Schnur**

As an increasing number of visually impaired children enter regular educational programs and visually impaired adults seek the services of a wide variety of social agencies,

many psychologists, teachers, and other professionals are being asked to deal with the

needs of blind persons for the first time. **MEASURES OF PSYCHOLOGICAL, VOCATIONAL, & EDUCATIONAL FUNCTIONING IN THE BLIND & VISUALLY HANDICAPPED** by Geraldine Scholl and Ronald Schnur was developed to serve as a resource, particularly for those who have never before evaluated a blind person, and to provide general information and guidelines on how to go about using the measures, with some discussion of alternative approaches to assessment when existing measures may be inadequate.

The primary purpose of this book, however, is to offer a listing of assessment measures that have been used in the past or are currently being employed to test visually impaired persons. Listings include, whenever possible, a brief description of the measure, the source from which it is available, and book and journal references describing previous work with the test. In instances where there is no published material for a particular measure, the authors have provided the name and address of their own correspondent who has been working with the test. There is also a section of general references and a list of selected reading.

Users of the manual can determine which of those measures with which they are already familiar have been adapted for use with the blind or they can choose new instruments that

seem appropriate to their needs. Researchers may wish to experiment with little used tests that may prove valuable once more data on them is available.

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# Comment

*A special forum for individuals to respond in detail to material published in the New Outlook for the Blind or elsewhere, to present new ideas, or to raise issues which relate to the specialized field of work with blind and visually handicapped persons. Contributions should be 350-1000 words in length.*

## Computer-Dependent Services for Blind Persons

**Emerson Foulke, Ph.D.**

With the appropriate software, computing machinery may be employed to assist blind persons in performing a variety of tasks that are generally performed with the assistance of sighted persons. Many of these tasks are of the sort carried on in places of work and study, and to the extent that blind persons must depend upon sighted assistance in those settings, they are at a disadvantage when competing with sighted colleagues. Consequently, the computer has considerable potential as a rehabilitative tool. If properly employed, it can place the blind worker or student on an equal footing with his sighted peer. Computer assistance can minimize the contribution of visual impairment and maximize the contribution of skills and motivation in determining the outcome of the blind person's competitive efforts.

To explore and exploit this potential, a nonprofit, public corporation, known as Computer Services for the Blind (CSB), was established by an act of the General Assembly of the Commonwealth of Kentucky, during the legislative session convened in 1972. The main purpose of this corporation is to develop ways of employing computing technology for the benefit of the blind citizens of Kentucky. In the budget for the 1972-74 biennium, Governor Wendell Ford made provision for \$176,000 to finance CSB's initial efforts. Since that time, three projects have received the attention of the CSB staff, and two are well underway.

## The ARTS System

ARTS is an acronym for "Audio Response Time Sharing." The ARTS system was brought to its current state of development by Dr. Kenneth Ingham, president, American Systems, Inc. It is a configuration of computing machinery which delivers services over telephone lines to its users on a time-sharing basis. The user gains access to the system through a terminal that is coupled, either acoustically or by wire, to his telephone line. The terminal includes a keyboard resembling the keyboard on an IBM Selectric typewriter, which the user operates in order to address the system, and a loudspeaker over which the user hears, in spoken English, the system's response. Since the system is operated in the time-sharing mode, it can accommodate many different users at the same time. The following are some examples of services that might be provided by the ARTS system.

The EDITOR program allows the blind author to create and manipulate text. He can type on his terminal keyboard and, if he wishes, his typing can be guided by the feedback provided by the vocal announcements of typed symbols. He can correct typing errors, find his place again if he forgets the last word or sentence he has typed, proofread, and delete and add words. When he is satisfied with his composition, he can cause one or more copies to be justified and printed, and he can file the composition for later reference.

The FORM program serves the blind employee who works in a setting in which the completion of forms is a part of his occupational requirement. The standard forms used by a social worker, for instance, can be kept on file in the ARTS system. When a form must be filled out, the ARTS system reads it to the blind user an item at a time, and the user supplies the information requested in each item by typing on his terminal keyboard. When he has completed the form, he can cause one or more copies to be justified and printed for use by others, and he can file the form for his own future reference.

The DICTIONARY program enables the user to look up words. To do so, he types a word on his keyboard. If he has spelled the word correctly, and if it is one of the words stored in the dictionary, its definition is read to him. If he has spelled it incorrectly, and if its incorrect spelling matches one of the common incorrect spellings stored in the computer, the word is spelled correctly and defined.

The CALCULATOR program makes available to the blind user all of the functions typically provided by a modern electronic calculator. He enters numbers and computing instructions from his keyboard and the results of computations are spoken to him.

The BOOKKEEPING program provides a bookkeeping service for the blind business executive. It permits him to keep a current record of business transactions, and he can manipulate the data he has stored in order to develop the information he needs for business decisions.

The services just described are only examples, and do not constitute the full range of services conceived for the system. One service allows the user to write his own

programs so that, within the limitations of the system, the services offered can be precisely tailored to the needs of each user. Of course, if a program written by the user creates a service that would be useful to many, it can be made generally available. As such, the spectrum of services offered by the system can be gradually shaped to respond to the needs of the user.

At present, we are in a position to demonstrate a rudimentary ARTS system. There is an EDITOR program which, though in need of further refinement, performs the functions described above. A JUSTIFIER program will permit composition to be arranged on the printed page in any desired format. An attenuated version of the BASIC programming language is available to the user, and when the system is operated in the BASIC mode, a calculator function is available. However, much of the system just described exists only at the conceptual level, and a properly funded developmental effort of two or three years will be required before this system can be fully realized. In the meantime, we are in the process of developing two other services that can be supported by the computing machinery in the ARTS system.

## Transcription of Print to Braille

Braille reading matter can be produced on a braille printing press. However, this is an expensive process, and it can be justified only when there is a sufficient level of demand, and when the expression of that demand can be organized, as in the case of residential schools for the blind or the library service operated by the Library of Congress. However, blind students in public schools, blind students in advanced education, and blind practitioners of occupations and professions in which reading is required are usually unable to demonstrate the demand that would warrant production of the reading matter they need on a braille printing press. Instead, they must rely on the service provided by sighted volunteer workers who have learned how to use the contracted form of the braille code. These are esoteric skills, acquired by few, and as a result, the blind person who wants reading matter that has not been produced by a braille press must often wait a very long time to receive it. The need for reading matter experienced by blind persons successfully employed in vocations with heavy reading requirements and blind students in higher education is often urgent, and yet, because the number of people wanting a given book at a particular time is so small, they cannot collectively exert the demand that would be required by a braille press for action. As a result, they must often do without a book that would have made them more effective in their work or study, or wait so long for it that by the time it can be made available, the need for it has passed.

A computer, properly programmed, can accomplish the transcription of print to properly contracted braille. Furthermore, using the computer, anyone who knows how to type can produce properly contracted braille reading matter. The typist works at an ordinary typewriter keyboard. This keyboard may be on-line, in which case it is connected to the computer, or off-line, in which case it is connected to a tape punch mechanism which punches the appropriate codes in paper tape. The tape



produced in this manner can be retained for reading by the computer at a time when the computer is not being used for other purposes. A braille page embosser can be operated by the computer, or it can be operated off-line from a tape reader, using a tape prepared by the computer.

In the system we are constructing, a teletypewriter is used to generate an input code that specifies all of the letters and punctuation marks in the printed matter. This input code is transformed by the computer to an output code that specifies the contractions required for Grade 2 braille, and this code is recorded on a cassette. The cassette is reproduced on a transport connected to a braille lineprinter (the LED 120, manufactured by Triformations, Inc., Stuart, Florida) that prints braille at a rate of 120 lines per minute.

The hardware required for this system is now in place. The program required for recoding the code generated by the teletypewriter is nearly written. We will shortly have a system that is capable of responding to the needs expressed by individuals for braille reading matter. Our plan, at present, is to set up a system in which most of the labor is done by volunteer workers. Volunteers will do the initial typing, tend the braille lineprinter, bind brailled pages into volumes, and mail brailled reading matter to those who have requested it. If we are able to operate this system successfully, its response time will be short enough so that readers can obtain the braille reading matter they want before the need for it has expired. A college student might, for instance, be able to obtain a journal article in braille in a week or less.

With a teletypewriter and a braille lineprinter on location at the Kentucky School for the Blind, or at any school or college in the state where blind students are receiving education, teachers or other personnel could easily prepare braille reading matter for immediate use by blind students. The same teletypewriter and braille lineprinter would make it possible for the blind student to receive computer-aided instruction.

### Tactographic Displays

Dr. John Gill, an electrical engineer at Warwick University, Coventry, England, has designed and developed a system that produces raised line drawings. A computer is the central component in this system. The symbols for points, lines, and areas that are used for graphic constructions are stored in the computer. The symbols needed for a given graphic presentation can be displayed on a visual display unit and composed by the operator to form the graphic display that is desired. The dot patterns in the braille code, also stored in the computer, can be added to the display at appropriate locations. When the operator is satisfied with the graphic display he has composed, a keyboard command causes the computer to punch a code into paper tape which specifies the display. This tape is used to control an automatic engraving machine that cuts a negative of the graphic display in a sheet of plastic. An epoxy positive is then made from the negative, and this positive serves as the master from which plastic duplicates are made in a vacuum-forming machine. Symbols are

precisely reproduced; the result is a graphic display with superior tactual legibility.

This system can be used to make tactual analogs of printed graphic presentations, such as the maps and diagrams in general use in educational and vocational settings. It can be used to make the maps for orientation and mobility that are needed by blind pedestrians and mobility instructors.

The major advantage offered by this system is the ease and speed with which tactographic displays of high quality can be produced. At present, there is no place in the country where a blind person or an instructor of blind persons can order a tactual graph or map to meet an immediate need, and expect to get it while the need is still extant. There are a few sources for tactographic materials, but they are not organized to respond to the needs of individuals, and the quality of their product leaves much to be desired.

Although some of the equipment required for the implementation of this system is still to be purchased, much of the equipment is already in place. However, its implementation is not scheduled for completion until after the transcription service is operating satisfactorily. The decision to proceed at that time will depend upon the availability of funds.

### Summary

The computer can play an important role in providing the assistance needed by blind persons in order to be competitive in educational and vocational settings. Computer Services for the Blind is now attempting the development of three kinds of assistance: the ARTS system, the transcription of print to braille, and the production of tactographic displays. Although the time-sharing capability of modern computers should ultimately make the provision of computer-dependent assistance economical, the initial costs of development and deployment are high. Current prospects for obtaining funds to meet developmental costs are not promising and CSB has no assurance of the continuing support it would need for the development that must precede the economic deployment of assistance.

*Dr. Foulke is the director of the Perceptual Alternatives Laboratory, University of Louisville, Kentucky. This report is based on a paper presented at the meeting of the American Association for the Advancement of Science, New York, January 29, 1975.*

## The Sense of Touch and Beyond: Art Appreciation by the Blind

By William Rowland

In art and communication, fashion and entertainment, science and commerce the faculty of touch has become an area of expanding sensibility. Direct handling and intimate contact add a dimension to experience which seemingly is lacking in the remoter forms of awareness.

Blind persons have always relied on their sense of touch as a primary source of information. In creating opportunities for the blind to appreciate art the assumption is made that this tactile information may

also have an aesthetic content, but it is an assumption open to challenge and therefore calling for critical examination.

### Appearances

Every physical object has shape and size and bears certain relationships to other objects. These realities are known by both sight and touch, which means that sighted and blind persons share a common knowledge of the identity and place of things.

In the case of the sighted person this information is disclosed at a distance and in detail during the course of visual observation. Objects are seen in color and constitute part of a perspective array. The view is panoramic and comprises a live situation in which the person acts with ease and confidence.

The blind person's experience is very different. For him the form and position of objects is not given at a glance, but becomes apparent through accidental or assisted discovery. Touch involves immediate contact with an object and discrimination of detail becomes a demanding task. Even after detailed investigation, the vividness of tactile experience soon fades as objects are transformed into the obstacles and utensils of a familiar environment. In such a setting sensitivity to tactile qualities has to be a deliberate project.

### The Scope of Touch

While some individuals might be inclined to stress the impoverishment of sensory experience produced by a lack of sight, it is far more helpful to draw attention to the intensification of tactile awareness which may result. A developed sense of touch, aided by intelligent movement of the hands and body, is the basis of exploration.

By feeling the planes and volumes of a sculpture and getting to know the shape, size, and arrangement of its parts, the blind person can easily grasp the grosser detail of design. Texture adds variety, allowing him to appreciate the raw state of untreated surfaces of the effects of skilled craftsmanship. Through the application of pressure, sensations of hardness, softness, rigidity, or elasticity are elicited. Other peculiarly tactile qualities such as temperature, stickiness, slipperiness, soapiness, and wetness not only add to the range of sensations, but enable the blind person to identify materials, such as the earthy warmth of wood or the slippery coldness of steel.

The subtle gradation of all these qualities and their infinite combinations offer endless possibilities of experience. Their full appreciation is a pleasure belonging uniquely to the realm of touch.

### A Vocabulary of Touch

The question arises whether tactile data only convey factual information or whether other kinds of messages might be communicated. For instance, might it not be possible for the artist to consciously employ tactile values in representing his thoughts and impressions?

To the extent that certain tactile and visual qualities correlate—a rough surface that looks bumpy, for example—the meaning to blind and sighted observers may coincide. More often, though, tactile qualities are an incidental consideration and are not purposely embodied in a work of





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art. This does not mean that artists may not on occasion intuitively invoke tactile effects to reinforce a visual statement. This is clearly the case. But the challenge of developing a purely tactile vocabulary and of creating works of art primarily intended for appreciation by touch has not yet been seriously attempted, even though there are sufficient grounds to warrant it.

### Fragmentation and Construction

In the light of what has been said about the sense of touch and the possibilities of a generic vocabulary, the fundamental assumption that tactile information may have an aesthetic content seems justified. An adequate interpretation of the tactile elements in a work of art would have to be associated with a sophisticated level of art appreciation, but whatever the intellectual attainments of the blind individual might be, the problem of his ability to perceive a work of art in terms of total design still remains. He may, for example, touch every part of a sculpture in turn, but how is he to gather these loose impressions into a unitary conception of the whole? Is his awareness perhaps only of a series of his own movements in the course of which a range of sensations is interrelated?

If this were the case blind people would hardly display any enthusiasm to visit art galleries and would probably find great difficulty in applying aesthetic concepts meaningfully. But the success of art programs for the blind points to a form of experience far more profound than mere schematization. Although the techniques applied by blind people viewing art have not yet been studied closely, it would appear that two processes are at work simultaneously. At one moment the fingers are examining a particular part of the work in minute detail. At another the hands are moving to and fro as the size and overall structure are gauged. These two approaches—fragmentation and construction, analysis and synthesis—alternate constantly and it is their effective integration that ultimately determines the blind person's conception of any object.

### Imaginative Enrichment

But the significance of art goes beyond its sensory impact. Not only do various tactile impressions coalesce in the total conception of a work, but this basic awareness is supplemented by cultural connotations, the experience of the past, the evidence of the remaining senses, and the descriptions given by other people. From these, a range of associations and meanings is evoked representing the blind person's distinctive response. Rather than a passive perception, his appreciation of art is an imaginative and assertive one and goes beyond the primary information of touch.

In this way the blind person brings an emphasis to bear on a sense which has generally been neglected in the visual arts. Might the wider recognition of tactile values not also prove an enrichment to those who have limited their experience of art to sight?

*Mr. Rowland is the director of the South African National Council for the Blind, Capetown.*



# Review

**The Changing Status of the Blind**, by Berthold Lowenfeld, Ph.D. Springfield, Ill.: Charles C Thomas, 1975. Clothbound, 336 pages, table of contents, index. \$23.50.

## Reviewed by Warren Bledsoe

Dr. Kathryn E. Maxfield was one of a small band of American psychologists who, in the late 1930s, had profoundly studied problems of blindness. Fortunately, she was also a most discerning observer of world affairs, and had become extremely alarmed over the effect political events in Austria might have upon her friend and colleague, Dr. Berthold Lowenfeld. A teacher of the blind with a doctor's degree in psychology from the University of Vienna, he was Jewish, and consequently threatened by the murderous prejudices which hung over the heads of such Austrian citizens. Always a doer, as well as a thinker, Dr. Maxfield ascertained that it would be possible for Dr. Lowenfeld to come to the United States if she furnished the State Department with an affidavit that he was an expert in his field and that he would not become an economic burden to this country. These guarantees she was happy to give with assurance and zeal, having become acquainted with Dr. Lowenfeld when he had visited the United States as a Rockefeller Research Fellow in 1930 and 1931. Through the years since his arrival in 1938, Dr. Lowenfeld has richly fulfilled the promises of her sponsorship and has also done it as naturally as he has breathed. Dr. Maxfield has every right to take credit for having arranged a most valuable living import—far more valuable to the United States than the Elgin Marbles have been to Britain.

In the years before Dr. Lowenfeld's arrival in the United States, Dr. Samuel P. Hayes had taken infinite pains to put psychological studies of blindness on a scientific basis through a long series of monographs which balanced the literature of opinion against valid experimentation with specific questions. The time had come for someone to focus the attention of psychology on the total effect of blindness. This Dr. Lowenfeld did, in contrast, though not in opposition, to Dr. Hayes. His work in the United States began on the staff of the American Foundation for the Blind (from 1939 until 1949), where he was Director of Educational Research and visiting professor at summer sessions of many universities and colleges. From 1944 until 1949 he was also lecturer in Special Education at Teachers College, Columbia University. Since then he has engaged in research and writing under the sponsorship of the U.S. Office of Education, the California State Department of Education, and the Social and Rehabilitation Service of the Department of Health, Education, and Welfare. The impressive result is over one hundred contributions to professional books and journals. He is also the author of *Our Blind Children*, published by Charles C Thomas in 1971 and *The Visually Handicapped Child in School*, published by John C. Day in 1973.

## Rebels—Past, Present, and Future

*The Changing Status of the Blind—From Separation to Integration* is Dr. Lowenfeld's most recent contribution to the movement of thought on blindness. It is a book with many facets. What the author apparently believes to be most important is his conservative defense of rebels—past, present, and future. He keynotes this by dedicating the book to Hector Chevigny, Thomas Cutsforth, Robert B. Irwin, Helen Keller, Newell Perry and Jacobus tenBroek, all of whom mounted the sociological hustings in their day. It is significant that no sighted rebels, such as Father Carroll and Charles F. F. Campbell qualified for the listing. Himself sighted, Dr. Lowenfeld is extremely jealous in behalf of blind people's credit for prodding the human race upward in its attitudes toward blindness. The closest he comes to a paean for action of this type goes to the National Federation of the Blind. The sale and circulation of the book may well depend on that organization. Whether it will be purchased by anti-typhlodisestablishmentarians (in more plain terms defenders of the faith and work of agencies for the blind) is a moot question. While Dr. Lowenfeld indicates in various ways that they mean well, he implies again and again that they mean it too feebly. He does not swallow whole hog Scott's idea that the real problem of blindness is the attitude of society, which by and large is composed of sighted individuals. But he leans very heavily toward such a viewpoint, quoting Helen Keller: "Not blindness, but the attitude of the seeing to the blind is the hardest burden to bear."

Unfortunately for those who find enlightenment in that dictum, the authenticity of this quotation is not altogether clear. Though it may frequently be found with her name signed to it in pamphlets issued by agencies, a reading of her entire published works in hard cover did not reveal it in a primary source. She did say in an *Outlook* article in 1907, "The heaviest burden on the blind is not blindness but idleness." She may well have subscribed to a different wording late in life. However, the idea runs counter to another idea expressed in her book *Midstream*: "Neither Greece nor Rome, nor all China, nor Germany, nor Great Britain has surrounded a deaf-blind child with the devotion and skill and resources which have been mine in America." This she regarded as little short of miraculous compared with the way the masses of sighted Americans treated each other—treatment that she castigated without mercy in the same book.

## Programs in America

In any case, Dr. Lowenfeld, having paid his debt to the American Way in the hard coin of solid work in the educational field, is now paying it the special compliment of frankness by showing some of the severest critics of the establishment in a fair, white light. It is to be hoped that the Republic will take this with good grace. That Dr. Lowenfeld found himself free to say just what he thought demonstrates to the full that his adopted country is still the land of free speech. Apart from Dr. Lowenfeld's

comparatively mild strictures directed at the "system" the book provides good value in its solid information about programs for the blind in the United States. The educational and rehabilitation programs are well described and credited with solid achievements. Indeed, the fact that this belies Dr. Lowenfeld's concern over the segregating effect of society's institutions embarrasses his thesis slightly, giving aid and comfort to the forces which he has weighed and, in theory, found wanting.

Dr. Lowenfeld has a good deal to say about America's creed, out of which his concept of integration proceeds. He quotes rather chilling authorities to the effect that American society at large is doing no better in work for the blind than it is in living up to its creed. One of the several foreign authorities he cites on the subject is Gunnar Myrdal, who claims it is a national custom "to indulge in high-sounding generalities in all written and spoken addresses to the American public, otherwise so splendidly gifted for the matter-of-fact approach to things and problems." Work for the blind is not free of the vice of indulging in high sounding generalities, and at its best it can be splendidly gifted for a matter-of-fact approach to things and problems. Of this there is no better example than Dr. Hoover and his cane technique, cited for excellence by Dr. Lowenfeld. One wishes, however, that Dr. Lowenfeld had let it be known (he certainly knew it himself) that some individuals inside agencies for the blind carried on a fierce battle to achieve the results obtained, and that some of these people were sighted friends of blind people. Two of them were Miss Kathern Gruber and Father Carroll. Father Carroll is mentioned only once in the book—for his theory relating blindness to death; his idea that rehabilitation represented resurrection is merely hinted at.

Dr. Lowenfeld cites two very arresting and revealing observations on blindness. One from Mary K. Bauman (sighted) says:

"We are responsible every time we allow a blind adolescent to leave our schools with terrible mobility, unattractive grooming, and mannerisms which certainly do set him apart in our society. We are responsible every time we hand a high school diploma to a student who cannot spell or do the simplest arithmetic. We are responsible when blind youth think they do not have to follow the rules or meet the standards of the industry in which they want jobs. We are responsible when we are not honest with the kids we counsel, when we let them get by with less than the best they could do, with less than the fullest development they could attain."

Another from Thomas Cutsforth (blind) says:

"The act of asking a stranger the name of an approaching street car is an admission of inferiority for which there must be compensation. And the thoughtful, kind-hearted guide through a traffic jam must be pleasantly thanked for his assistance—society demands it—while the emotions demand that he be cursed or struck down with the cane."



It is clear that in his long life Dr. Lowenfeld has identified with both, but that he leans a little more toward the spirit of Cutsforth's observation than toward that of Mrs. Bauman. It is understandable.

One of the most curious, real and touching passages in the book is Dr. Lowenfeld's writing about the early Christians, whom he discusses almost as though he were an enlightened Baptist. He gives high marks to members of the closely-knit sect for their treatment of the disadvantaged up to the conversion of the Emperor Constantine, which he seems to look upon as a worldwide disaster. The ensuing institutionalizing and bureaucratizing of Christianity put too many demands, both material and spiritual, upon the charitable disposition of the Roman Emperor. Certainly it can be agreed that Dr. Lowenfeld has had a world of experience observing the bureaucratic aspect of mankind's experience, starting under the Emperor Franz Joseph, thirteen years before 1914.

### Segregation-Integration

In taking on the subject of integration, Dr. Lowenfeld has assaulted one of the knottiest of philosophical problems, the complexity of which emerges in his definition of the word: "The mutual acceptance based on equality of opportunity before the law, between and among groups and individuals who differ in some important characteristic, may it be racial, religious, physical, economic, or otherwise."

It is a forgotten fact of American history that one hundred years ago Cardinal Gibbons contended with the Vatican and half the Catholics in the United States in his zeal for an "integrated" American society, toward this end persuading the Pope not to establish a German-speaking Catholic church organization in this country and at the same time to sanction Catholic children's attendance in public school. Only yesterday a group of Catholics began to advance the idea of multi-lingual Catholic churches to promote integration, coming full circle from those simple times to our own complex days.

Segregation to promote integration is one of the most paradoxical aspects of the whole subject. It is one about which Dr. Lowenfeld has shown he can be "splendidly practical," whatever he hopes and fears for handicapped people through centuries to come. In 1946 at the A.A.W.B. Convention, he urged upon his hearers the necessity to close residential schools "tomorrow." Later he bowed to the inevitable, and, as principal of the California School for the Blind, did the best he could to make it an instrument of integration, propelling the students back into the main stream of society. The school still exists, and is shortly to be moved from quakey ground for safe keeping. It is to be hoped that it will continue to have centrifugal as well as centripetal force. Certainly Dr. Lowenfeld did everything he could to get its sociological dynamics functioning on that basis.

Mr. Bledsoe is principal consultant to the Office for the Blind and Visually Handicapped, Rehabilitation Service Administration, Department of Health, Education and Welfare, Washington, D.C.

## Letter to the Editors

To the Editors:

I am writing to you on a subject which seems very important to me, and I hope that after reading my letter, you will feel the same way. *Feeling Sports* is a magazine published in Minneapolis by the Braille Sports Foundation. It is an excellent magazine that deserves attention.

I am a middle-aged blind businessman, with a large national sporting goods company, doing business in every province in Canada and in several states of the United States. I mention this fact for several reasons: I have had a long standing love of sports and athletics and being in the athletic and recreation business makes me very familiar with all aspects of athletics. I am also heavily involved in physical fitness, my own and that of those around me, and I participate in many sports, including golf, downhill and cross country skiing, canoeing, cycling, and ice skating.

Since subscribing to this magazine, I've become very enthusiastic about blind children and adults of all ages becoming aware of the possibilities of participation in many sports and leisure activities. I am well on into middle age and it took me most of a lifetime to find out that I could do all of the things I am now doing and enjoying. I feel that this situation still exists among many thousands of children and adults and I feel that AFB is best suited for the task of eliminating this kind of ignorance.

Concretely, I think AFB can help *Feeling Sports* in several ways. AFB could write up the magazine and what it is doing and accomplishing in *The New Outlook for the Blind*. It can cooperate with *Feeling Sports* in encouraging the recording of training manual books for blind athletes. For example, I do a fair amount of cross country skiing. I have never had the pleasure of learning the theory of the sport, yet I know of excellent print books that are available.

I am one of the fortunate few in Canada who has the privilege of receiving books from the Library for the Blind and Physically Handicapped. I am familiar with some of the fabulous people who read books for the Library of Congress. They have given me endless hours of pleasure. There is no doubt whatsoever in my mind that the facilities and the people are available to create an excellent working library of books concerning athletics for blind children and adults.

I might add that this is an unsolicited letter and that the editor and director of the Braille Sports Foundation, John Ross, does not know that I have written it. I have called him and spoken to him on the telephone on several occasions and I think his approach to the growth of the magazine is excellent. It is doubtful whether you could find a blind person with more dedication, knowledge, and ability or one who could equal John Ross in what he is doing.

Nathan Micay  
Athletes Wear Co., Ltd.  
Winnipeg, Manitoba  
Canada

## Current Literature

*A report of significant new additions to the M. C. Migel Memorial Library of the American Foundation for the Blind, prepared by Elaine M. Siegel, librarian. These materials may be borrowed from the library.*

### Aids & Appliances

**Music Reading with the Optacon**, by Yoshio Muranaka and Kazuko Homma. *Bulletin of the Tokyo Metropolitan Rehabilitation Center for the Physically and Mentally Handicapped*. (The Center, 43 Toyama-cho, Shinjuku-ku, Tokyo, Japan), March 1976, pp. 9-20. Report on an experimental program at the Tokyo Metropolitan Rehabilitation Center for the Physically and Mentally Handicapped to train a blind 8-year-old girl in Optacon music (piano scores) reading. Some of the problems confronted included establishing the optimal magnification on the tactile array, learning to distinguish the elements of music notation as well as their configuration in the score, developing sufficient capacity of immediate memory to permit playing of the music on the piano after reading several notes or measures. The training covered instruction in the use of the Optacon, training in recognition of music signs and numerals, practice in various tracking methods, piano rehearsal and playing. Results indicate that the subject mastered music reading with the Optacon over a two-week intensive training period.

### Attitudes & Adjustment

**Attitudes to Blindness**, by Dorothy Poss. *Imfama* (South Africa National Council for the Blind, P.O. Box 5504, Johannesburg, South Africa), Vol. 16, No. 1, February 1976, pp. 3-7, 19-20. The author explores the prevailing attitudes toward blindness, their historical foundation, and, specifically, the attitudes of professional workers in the field of blind welfare in South Africa. In a study undertaken to unearth the misconceptions and prejudices fostering negative attitudes, responses to questionnaires sent to 200 social workers, teachers, mobility specialists and doctors throughout South Africa revealed the following opinions: (1) the most acceptable form of service is provided by professionally trained personnel; (2) educable youth should receive preference in service facilities; (3) optimal service for clients can be effected by teamwork within the agency; (4) most blind people are best suited for sheltered employment; (5) the most beneficial part of rehabilitation is orientation and mobility training; (6) stereotypes can be modified most successfully via public education efforts of agency workers.

**Coping with Newly Diagnosed Blindness**, by Carlos Neu. *American Journal of Nursing* (10 Columbus Circle, New York, New York 10019), Vol. 75, No. 12, December 1975, pp. 2161-2163. The author, a psychiatrist affiliated with the Carroll Rehabilitation Center for the Visually Impaired, Boston State Hospital, Tufts University Medical



School and Harvard University Medical School, depicts the psychological effects of adventitious blindness upon the individual and his relatives and associates, citing the latter group's need for help in the adjustment process. He notes the influence of such factors as basic psychological strength, age, degree of loss, reaction of friends and relatives, job status, and overall physical health. He deplores the lack of candor and the denial of reality often exhibited by well-meaning physicians and relatives, thus delaying the blinded individual's adjustment to his loss.

## Biography

**Out of Sight; Ten Stories of Victory Over Blindness**, by Al Sperber. Little, Brown and Company (34 Beacon Street, Boston, Massachusetts 02106), 1976, 259p. \$7.95. The author, who currently hosts "Out of Sight," a radio program by and for the blind in New York City, relates his own and nine blind friends' experiences with blindness from the time of onset to the present. The other nine individuals include a nun who teaches sighted children, a state supreme court justice, a sculptress, a championship golfer, two civil servants, an accountant, a municipal administrator, and a radio moderator. Through anecdotes and biographical sketches, the book imparts insight into the capabilities, frustrations, and sensitivities of blind persons, and does much to dispel the stereotypes with which the sighted regard the blind.

**Tom Sullivan: Fair Spoken and Persuading**, by Diane Lattin. *Performance* (President's Committee on Employment of the Handicapped, Washington, D.C. 20210), Vol. 26, No. 10, April 1976, pp. 2-7. Interview with Tom Sullivan, blind singer, composer, and author (full-length review of his autobiography *If You Could See What I Hear* appeared in the November 1975 issue of the *New Outlook*), focusing on his views on the education of handicapped children. Preferring the term "inconvenienced" to "handicapped," Mr. Sullivan criticizes the isolating and stigmatizing effects of education in a special facility, the tendency for children to be assigned to schools closest to their homes rather than to the ones that might be the best for them, the lack of centralized information for parents, and the dearth of summer work opportunities for these students. He advocates increased political unity among those with various disabilities.

## Braille

**A System of Braille Notation on Mathematics, Physics, Astronomy and Chemistry; A Manual**. All-Russia Association of the Blind (Novaya Square 14, Moscow, U.S.S.R.), 2 Vols., 444p. total. Translated from the Russian by M. A. Levit and L. I. Etkina; edited by I. V. Proskurayava. This unified system of mathematical, physical, astronomical and chemical notation represents the efforts of a commission of scientists and practical workers appointed in 1963 by the Central Board of the All-Russia Association of the Blind. Covering over 700 characters, the new system supersedes the Marburg system of mathematical and chemical notation, which contains 235 characters. An illustrated index of symbols

and an alphabetical index of names of signs refer the user to the appropriate tables and pages explaining the meaning of each symbol and the rules for its use.

## Career Education

**Career and Vocational Education for Today's Changing World of Work**. *The Florida School Herald* (Florida School for the Deaf and the Blind, St. Augustine, Florida 32084), Vol. 75, No. 7, pp. 7-12. The Florida School for the Deaf and the Blind, Department for the Blind, has, in recent years, placed an emphasis on vocational course work and career education. In a combination of on- and off-campus workstudy, programs have been initiated in business education, basic electricity, electronics and radio, woodworking and maintenance, small engine repair, homemaking, and horticulture. Programs sponsored in conjunction with the state Bureau of Blind Services are also described, and specific job placements are noted.

**Finding Out What They Can Do; Vocational Evaluation for the Blind**, by Malinda Jones. *The Record* (Tennessee Department of Human Services, 410 State Office Building, Nashville, Tennessee 37219), Vol. 39, No. 2, March 1976, pp. 19-22. Vocational Evaluation and Personal Adjustment Center is operated by Services for the Blind at Mason Brandon Industries, Nashville, Tennessee. Under the direction of vocational evaluation specialist Claude Peacock, the Center is designed to teach blind persons (an average of three at any given time) who have been referred by rehabilitation counselors, daily living skills and to assess and predict work behavior and vocational potential. Functional skills evaluations are offered in sorting, packaging and basic assembly; use of basic hand tools; automotive and small engine mechanics; clerical skills; sewing; mop and broom winding; vending stand operation; use of power equipment; collation and related work. The evaluation is based upon psychological tests, interviews, and experience with various work samples.

## Concept Development

**Development of Spatial Concepts in Visually Deprived Children**, by Lawrence C. Hartlage. *Perceptual and Motor Skills* (Box 1441, Missoula, Montana 59801), Vol. 42, No. 1, February 1976, pp. 255-258. Study of spatial and nonspatial reasoning ability in 110 blind children (and sighted control group) in grades 2-12 in schools for the blind and public schools in Kentucky, Ohio, and Tennessee. The test instrument, administered in tape-recorded form, consisted of linear syllogisms, with 16 spatial and 16 matched nonspatial questions. Results indicated that, at every age level, the performance of blind children was inferior to that of sighted children on spatial questions, blind subjects performed less well on spatial than on nonspatial questions, and performance of blind and sighted on nonspatial questions was similar.

## Counseling

**A Counseling Bureau Resource Center for Visually Handicapped Students**, by Donald A. Swanson. (Paper presented at the 50th Annual Meeting of the American College

Personnel Association, Atlanta, Georgia, March 1975.) 8p. In this paper, the author, Director of the Counseling Bureau of the University of South Carolina, traces the development of the relationship between the Bureau and the South Carolina Commission for the Blind. This alliance has resulted in cooperative precollege summer programming for visually handicapped students, ongoing support systems throughout the academic year and summers, and establishment of a resource center, equipped with reading machines, speech typewriters, and tape recording equipment, to facilitate the social, personal, and educational development of the visually handicapped students on campus. Copies are available from: ERIC Document Reproduction Service, P.O. Box 190, Arlington, Virginia 22210 (Document #ED 109 557, \$1.58).

## Deaf-Blind

**Learning Steps; A Handbook for Persons Working with Deaf-Blind Children**. State Department of Education (721 Capitol Mall, Sacramento, California 95814), 1976, 292p. Free. This handbook is based on the John Tracy Clinic Correspondence Learning Program for Parents of Preschool Deaf-Blind Children. It consists of three sections: general information on the deaf-blind child—sight, hearing, health, discipline, language, play; specific activities for teaching skills in the areas of body movement, eating, dressing, toilet training, personal hygiene, and use of leisure time; the manual alphabet and an alphabetical listing of signs. All sections are liberally and clearly illustrated.

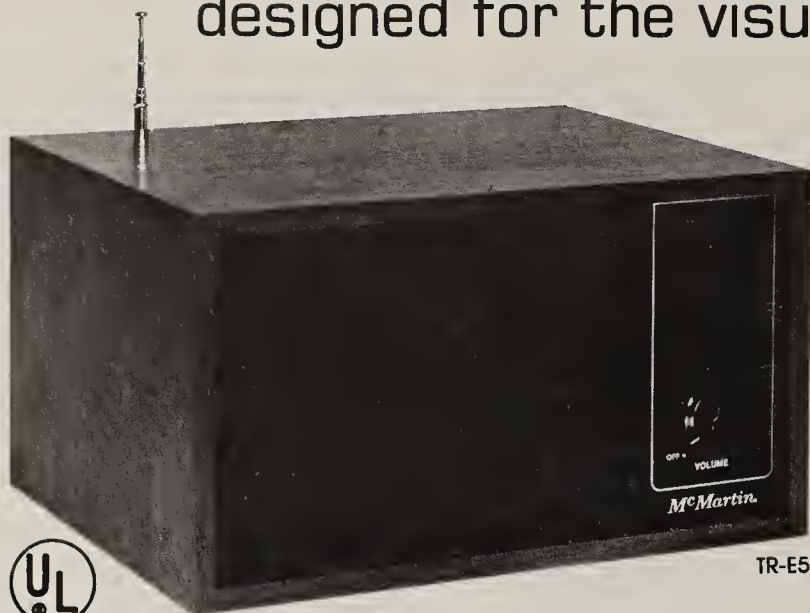
**New Techniques for Working with Deaf-Blind Children—III**. Mountain Plains Regional Center for Services to Deaf-Blind Children (1346 Lincoln Street, Denver, Colorado 80203), June 1975, 60p. + Addendum. Proceedings of the third New Technique Workshop, held in Santa Fe, New Mexico, October 3-5, 1974. The ten papers concern such topics as the interdisciplinary diagnostic team, parents and family services, needs of the low functioning, mid-range functioning, and high functioning deaf-blind child, problems confronting program administrators, teachers, physical therapists, and occupational therapists working with the deaf-blind child, and vocational and rehabilitation issues.

## Education

**Mainstreaming—Integration or Segregation for the Visually Handicapped**, by Robert W. Bischoff. *The Utah Eagle* (Utah School for the Blind, 846 20th Street, Ogden, Utah 84401), Vol. 87, No. 6, March 1976, pp. 1-3. The author, principal of the Utah School for the Blind, highlights some of the disadvantages of mainstreaming of visually handicapped students. More successful integration might be achieved, he contends, through the elimination of blindisms beginning at the preschool level, preparation in basic skills at a residential school followed by gradual integration into public school classes with the assistance of itinerant teachers, orientation for sighted students and teachers, parental support, student motivation, and cooperation between regular and special education.



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**Teaching the Mammalian Heart to the Visually Handicapped—A Lesson In Concrete Experience**, by Pearl Francoeur and Bilhah Eilam. *The Science Teacher* (National Science Teachers Association, 1742 Connecticut Avenue, N.W., Washington, D.C. 20009), Vol. 42, No. 10, December 1975, pp. 8-11. The authors describe an instructional activity suitable for use with both sighted and blind high school biology students. The unit, designed to convey the relationships between heart structure and function and heart structure and body temperature, makes use of programmed instruction and both real organs and anatomical models. Suggestions for designing or adapting iconic models are supplied, and behavioral objectives and procedures for laboratory sessions are listed.

## Employment

**Breaking the Competitive Employment Barrier for Blind People**, by Charles H. Wacker. *Journal of Rehabilitation* (National Rehabilitation Association, 1522 K Street, N.W., Washington, D.C. 20005), Vol. 42, No. 3, May-June 1976, pp. 28-31, 40. The author, a vocational counselor, analyzes the attitudes and responses of seven major corporations he contacted regarding hiring qualified blind employees in competitive jobs. He reports that, initially, all the firms evinced great interest in hiring blind employees, aged 22-40 and trained in a vocational independence program; ultimately, however, one firm hired a blind clerk-typist, one requested a list of qualified computer programmers but never followed through, and the rest backed down. Emphasis is placed on specific problems of communication, preconceptions, presentation, and credibility encountered by vocational counselors and blind applicants.

**Guidelines for the Selection, Training, and Placement of Blind Persons in Information Service Expediting**. Southern Illinois University (Rehabilitation Institute, Carbondale, Illinois 62901), June 1975, 101p. + Appendices. Project sponsored by Southern Illinois University, Rehabilitation Institute and U.S. Rehabilitation Services Administration, under the leadership of Project Director Louis Vieceli and Project Coordinators Thomas W. Dickey and George Magers. Chapters pertain to selection, training, placement, present and future trends, and job restructuring to enhance employment opportunities for the visually handicapped in the field of Information Service Expediting. This term refers to a broad occupational area in which the function common to all jobs is the use of the telephone and other telecommunications equipment to provide an explanation, information, referral, or initiate action if appropriate. Currently, over 300 blind and visually handicapped individuals are employed in this field in such capacities as Taxpayer Service Representative, Airline Reservations Clerk, Dispatcher, and Customer Service Representative.

## Low Vision

**An Evaluation of a Research Information Dissemination and Translation Vehicle**, by Douglas Kent Ozias. Doctoral Dissertation, University of Texas at Austin, May 1975, 345p. Report on a survey of 147 teacher-

participants in 15 regional Utilization of Low Vision Special Study Institutes, April 1970-April 1971, initiated and supported by the Bureau of Education of the Handicapped, U.S. Office of Education. Based on a model developed at the 1969 Austin Conference on Utilization of Low Vision, the Institutes were designed to accelerate delivery of direct services to low vision children. In evaluating the success of the Institutes, the following factors were considered: (1) relevant characteristics of those teachers trained through the project; (2) their reactions to the institute as an information dissemination vehicle; (3) the nature and scope of their activities to deliver direct services to low vision children; (4) their "second generation" efforts in preparing additional teachers; (5) an appraisal of the *Utilization of Low Vision Kit*, a packet containing "Teacher's Guide for Utilization of Low Vision" and "Visual Efficiency Scale," both by Natalie Barraga, 1970. Copies of the dissertation are available from: Xerox University Microfilm, Dissertation Copies, P.O. Box 1764, Ann Arbor, Michigan 48106 (Order No. 75-24,933, \$15 for academic libraries, \$20 for others).

## Orientation & Mobility

**A Curriculum Guide for the Development of Body and Sensory Awareness for the Visually Impaired**, edited by Constance Schiltz. Illinois State Office of the Superintendent of Public Instruction (Instructional Materials Center, Springfield, Illinois), September 1974, 337p. (2 vols.) Intended to help classroom teachers develop basic orientation and mobility skills in young visually handicapped children, this guide contains five sections dealing with body image, sensory concepts and abilities, motor coordination, sensory modalities, and pre-cane skills. Each section consists of an introduction to and definitions of specific skills, checklist charts for assessment, and suggested activities, games, materials, and references. Also included are the script of an orientation and mobility slide-tape presentation and a description of low vision and mobility aids kits. Copies are available from: ERIC Document Reproduction Service, P.O. Box 190, Arlington, Virginia 22210 (Document #ED 111-154, \$17.13).

**Environmental Sensing Skills and Behaviors; A Reference Compendium** (Preliminary Version), by Robert A. Weisgerber and Amanda P. Hall. American Institutes for Research (Palo Alto, California 94302), November 1975, 95p. Prepared for the U.S. Veterans Administration, Research Center for Prosthetics, for the evaluation and analysis of improved equipment design and more efficient training in orientation and mobility and environmental sensing tasks. Not intended as an orientation and mobility training manual, the compendium devotes separate chapters to the visually impaired individual's need to develop a cognitive map, to reach a destination, to develop sensory and perceptual sophistication, and to improve personal factors—learning skills, willingness to travel, etc. Within each chapter, specific tasks are defined, effective and ineffective behaviors are described, and requisite behaviors and skills are noted. A glossary of orientation and mobility and behavioral terms is included.

# Publications of Note

*A classified listing of books, articles, directories, pamphlets, and other material of interest to the readers of the New Outlook for the Blind, prepared by the editors. Please write to the source listed in each entry if copies or more information is desired; the materials are not available from the New Outlook or the American Foundation for the Blind.*

## Aids, Devices, and Equipment

**The Development of the Generation II as an Aid for Patients with Retinitis Pigmentosa and Night Blindness**, by Bill Davidson, Clyde Echols, and Randall Jose. *Journal of Optometry and Physiological Optics* (American Academy of Optometry, 115 W. Broadway, P.O. Box 565, Owatonna, Minnesota 55060), February 1976, Vol. 53, No. 2, pp. 88-94. The Generation II is a modification of the Army's night photography-observation instrument. With this instrument low levels of light are intensified approximately 700 times, allowing persons with no rod functions to see at night. The device can be used at night for spotting and mobility purposes.

**Report on the Richard King Mellon Foundation Optacon Training and Purchase Subsidy Program**. American Foundation for the Blind (15 W. 16th St., New York, N.Y. 10011) [1976]. Free. A survey of 233 Optacon users in Pittsburgh conducted by the AFB at the request of the Richard King Mellon Foundation which underwrote the training programs in Pittsburgh. Includes recommendations for establishing similar programs in other communities.

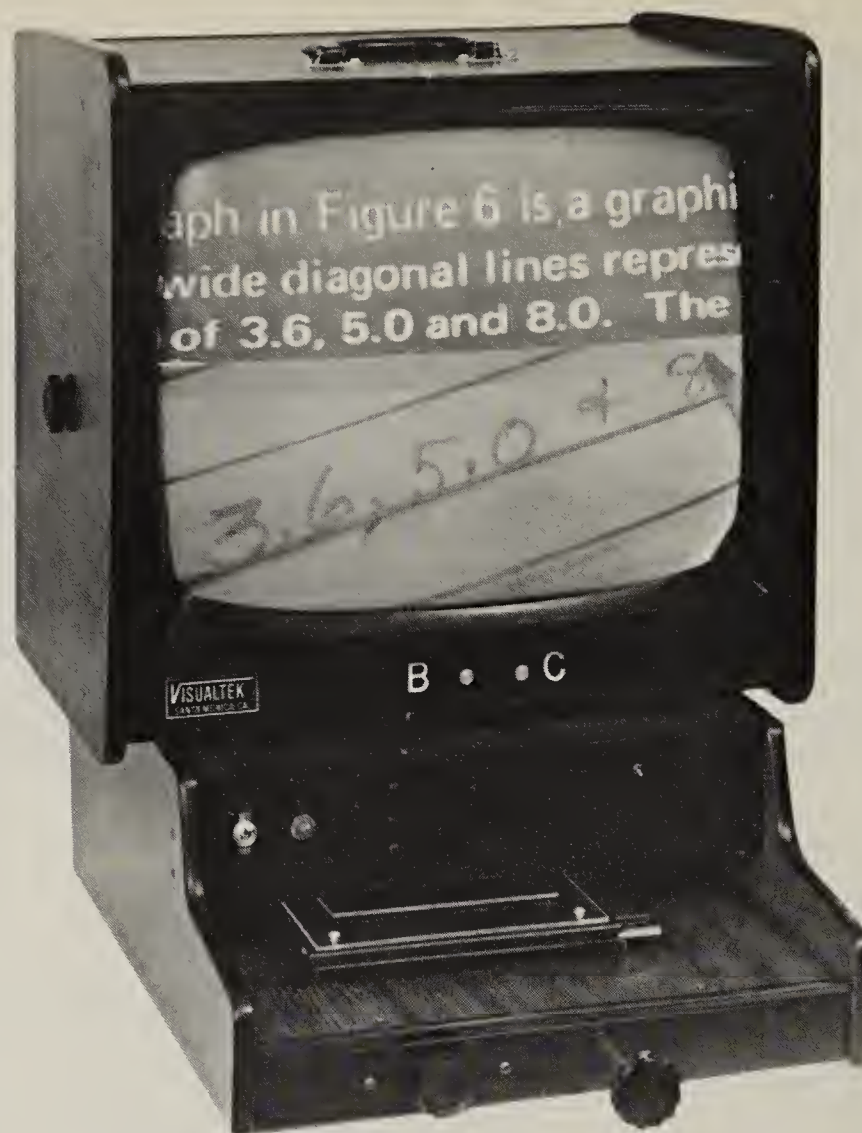
## Architecture

**No One at Home: A Brief Review of Housing for Handicapped Persons in Some European Countries**, by Deborah Greenstein, Charles Gereli, and Edmond Leonard. *Rehabilitation Literature* (National Easter Seal Society, 2023 W. Ogden Avenue, Chicago, Illinois 60612), January 1976, Vol. 37, No. 1, pp. 2-9. In order to alleviate architectural barriers to handicapped persons the U.S. Department of Housing and Urban Development is currently sponsoring a two-year research study to develop new American national standards on accessibility to public places. As part of the research effort a study tour of housing for the handicapped was conducted in three European countries (Sweden, Holland, and France). Sweden was found to be the most advanced country in the areas of integration of housing for handicapped persons into the general community and accessibility of public places and transportation.

## Attitudes and Adjustment

**The Special Stress That Can Break or Make a Marriage**, by Audrey T. McCollum. *Parents' Magazine* (80 New Bridge Road, Bergenfield, New Jersey 07621), Vol. 51, No. 4, pp. 34-35, 66, 68. A child's prolonged illness may have a profound effect on the





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relationship between his parents. Feelings of anxiety, guilt, and resentment can arise, wedging a barrier between them. This article discusses those problems and ways of coping with them.

## Audition

**The Effects of Training on the Accuracy of Auditory Localisation Using Binaural Hearing Aid Systems**, by A. D. Heyes and D. J. Gazely. *British Journal of Audiology* (Royal National Institute for the Deaf, 105 Gower Street, London, WC1E 6AH, England), 1975, Vol. 9, pp. 61-70. A series of chest-mounted hearing aid systems were designed to aid auditory localization for hearing impaired blind persons. Sound localization performance was measured before and after training. The study revealed that the effects of training far outweighed the contribution made by the sophisticated hardware.

## Deaf-Blind Persons

**15 Ways to Communicate with a Deaf-Blind Person**. Living Rehabilitation Center (6215 S.E. Foster Road, Portland, Oregon 97206), [1975]. Through pictures and descriptions, this pamphlet explains 15 ways to communicate with deaf-blind persons—six that require special training, nine that do not.

## Early Childhood

**Resource Book for Early Intervention of the Developmentally Delayed**, edited by Edward R. Harris and Sarah P. Brodsky. First Step (Pennsylvania Association for Retarded Citizens, 1500 N. Second Street,

Harrisburg, Pa. 17102), [1975]. Single copy free; \$2.50 for each additional copy. Selected presentations from a series of seminars on early intervention held throughout Pennsylvania.

**Blind Preschool**, compiled by Billie Taylor. SPED Publications (2010 Eagle View Drive, Colorado Springs, Colorado 80909), [1976]. \$3.95. Includes articles on the early motor development of blind children, attitudes toward blindness, methods of helping blind children learn orientation and mobility, and play activities that are beneficial for the young blind child.

## Education

**Why Education R & D?** by Harold L. Hodgkinson. *American Education*, Vol. 12, No. 3, pp. 11-13. (Reprints available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.) The director of the National Institute of Education discusses the problems and progress of education research and development.

**School Health in America**. American School Health Association (P.O. Box 708, Kent, Ohio 44240), 1976. 100 p. \$5.00. This survey of state level school health programs includes data on certification of school nurses and health educators, laws and requirements for health education in public schools, and school environmental standards.

**A Pediatric Play Program**, by Pat Azarnoff and Sharon Flegal. Charles C Thomas (301-327 E. Lawrence Avenue, Springfield, Illinois 62717), 1975. 112 p. \$7.50. A guideline for developing a therapeutic play

program for children in hospitals and clinics. Includes a bibliography and a list of children's books.

## Films

**The World of Deaf-blind Children—Growing Up**. Perkins School for the Blind; 29 min., color, sound, 16mm. (May be borrowed free of charge from Guidance Information Center, Saxtons River, Vermont 05154.) Describes the social needs of deaf-blind children and the program at Perkins designed to meet those needs which includes career education, home management and daily living skills, and mobility training.

## Fund Raising

**How to Get Government Grants**, by Philip Des Marais. Public Service Materials Center (355 Lexington Avenue, New York, N.Y. 10017), 1975. 160 p. \$13.50. A manual designed to guide health and rehabilitation agencies through the maze of government grants. Includes information on eligibility, sources of funds, developing proposals, and filing applications.

## Legislation

**A Summary of Legislation Relating to Travel with Dog Guides**. The Seeing Eye, Inc. (P.O. Box 375, Morristown, New Jersey 07960), \$1.00. Compilation of statutes pertaining to dog guide users in the United States and Canada.

## Medicine

**Eye Surgery, Assembly-Line Style**. *Medical World News* (McGraw-Hill, 1221 Avenue of the Americas, New York, N.Y. 10020),

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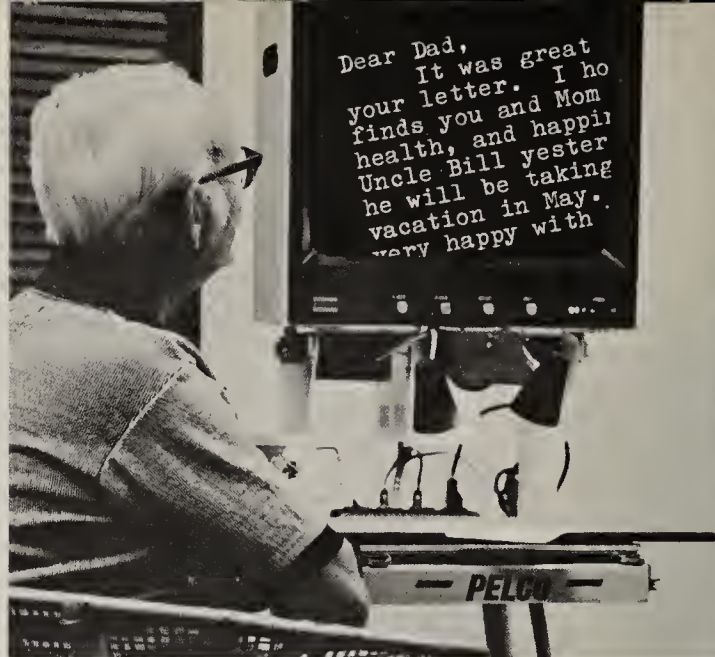
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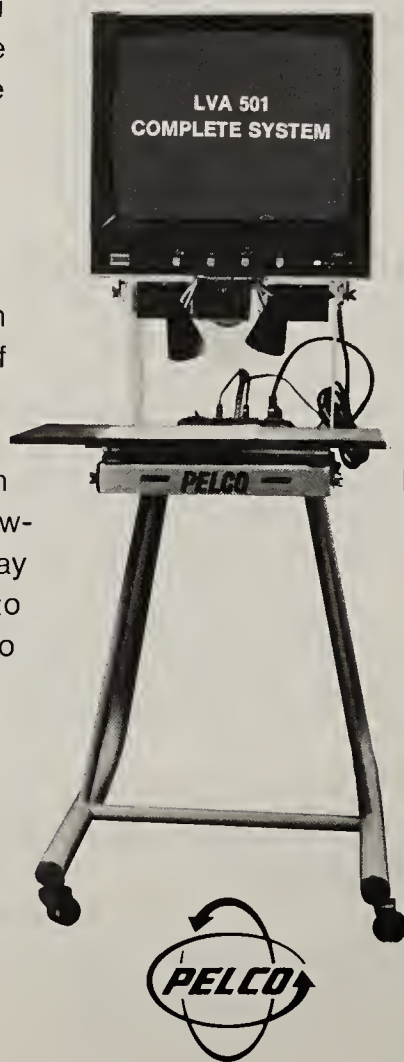
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April 19, 1976, Vol. 17, No. 8, pp. 64-65. Two doctors at Christian Hospital, a small missionary hospital in Taxila, Pakistan, are presently performing up to 300 cataract operations a day. According to Dr. Norval E. Christy, head of the hospital, of the 10,000 operations performed annually, 95 percent are successful (matching the U.S. rate). The operation costs 36 rupees, which is equivalent to \$3.60.

## Psychology

**Transactional Analysis and the Optometrist/Patient Relationship**, by Janice K. Roggenkamp. *Optical Journal and Review of Optometry* (Chilton Co., Chilton Way, Radnor, Pa. 19089), January 15, 1976, Vol. 113, No. 1, pp. 51-56. Explains the basic principles behind TA and describes how it can be used to improve the relationship between patient and optometrist.

## Publications

**Low Vision Service.** New York Association for the Blind (Lighthouse, 111 East 59th Street, New York, N.Y. 10022), 1976. This poster-flyer shows a scene as viewed with normal vision, then illustrates how it would look to individuals with cataracts, macular degeneration, glaucoma, corneal pathology, hemianopia, retinitis pigmentosa, and retinal detachment. It also describes the low vision aids and services available at the Lighthouse for persons with these visual impairments.

**Periodicals and Sources: A List of Federal Statistical Publications.** Congressional Information Service, Inc. (7101 Wisconsin Avenue, Washington, D.C. 20014), free. Lists 798 titles of currently issued government periodicals which contain statistics on a wide variety of subjects. Included is information source, periodicity, availability, depository status, depository item number, and hardcopy price.

**Bibliography on Bioethics, Vol. I**, edited by LeRoy Walters, Ph.D. Gale Research Co. (Book Tower, Detroit, Michigan 48226), 1976. \$24.00. Bioethics is the systematic study of questions of values which arise in the biomedical and behavioral fields. This bibliography indexes more than 800 articles, books, laws, court decisions, and audio-visual materials related to the discipline. The areas covered include human experimentation, death and dying, genetic intervention, mental health therapies, artificial and transplanted organs, and the patient-physician relationship.

## Sex Education

**Human Sexuality and the Handicapped**, by Edith P. Schneider. *Personnel and Guidance Journal* (American Personnel and Guidance Association, 1607 New Hampshire Avenue, N.W., Washington, D.C. 20009), Vol. 54, No. 7, pp. 378-380. All too often the sexual needs of handicapped persons are denied or ignored. The author urges special counseling of handicapped persons to help them achieve their fullest potential in this fundamental human need.

# News in Brief

■ On May 3, 1976 Robert N. Butler, noted psychiatrist, gerontologist, and author, began his first day as the new director of the National Institute on Aging. Later in the day, Butler learned that he had just been awarded the Pulitzer Prize in nonfiction for his book, *Why Survive? Being Old in America*. The book criticizes American society's treatment of the elderly and calls for a reform of social policies for senior citizens. After all the excitement Butler said, "I don't know if any first day at work could be quite the same."

■ The Bureau of Education for the Handicapped of the U.S. Office of Education has approved funding totaling over one million dollars for the first year of a proposed three year program to disseminate the Optacon reading machine to blind students. Funding has also been approved for a special program to prepare approximately 90 teachers across the country to teach visually impaired students to use the Optacon.

■ As of July 1, 1976, many SSI (Supplemental Security Income) recipients in New York are eligible to receive food stamps. Previously, a \$10 food stamp cash value was included in the monthly checks; this \$10 payment will continue in addition to the food stamps so there will be no reduction in the amount of the checks.

■ Persons interested in attending or submitting a paper, symposium, videotape, or film to the next conference on Piagetian Theory and Its Implications for the Helping Professions (to be held January 28, 1977) should contact: Piaget Conference Committee, University Affiliated Project, Children's Hospital of Los Angeles, P.O. Box 54700, Los Angeles, California 90054.

■ In order to expand the production of braille music and to encourage more persons to become certified as braille music transcribers, the Library of Congress Division for the Blind and Physically Handicapped will now pay transcribers for scores that are added to the Library's collection. For further information contact the Music Section, Division for the Blind and Physically Handicapped, Library of Congress, Washington, D.C. 20542.

■ President Ford has announced that the White House Conference on Handicapped Individuals will be held May 25-29, 1977. Conferences will be held in every state and territory prior to the White House Conference to set up priorities and major concerns for the national meeting. Governors have already appointed directors for the state conferences, 37 of whom are handicapped individuals

■ "Project Feedback," a new program started by the Alexander Graham Bell Association for the Deaf, urges parents of hearing impaired children to write to physicians

and specialists whom they have consulted in the past, providing current information on their child's progress. The reason for this explains Dr. George Fellendorf, executive director of the association, is that "many pediatricians, general practitioners, audiologists, and special educators see young hearing impaired children, diagnose the condition, make recommendations, and then don't see these children again. Without a knowledge of what has happened to a child . . . the chances are that these authorities will never know if their diagnosis and recommendations were right, wrong, or somewhere in-between."

■ Accreditation of five more agencies and schools for the blind has been announced by the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped (NAC). They are: Arkansas State Office for the Blind and Visually Impaired; the Association for the Blind of Rochester and Monroe Counties, New York; Clovernook Home and School for the Blind, Cincinnati, Ohio; Utah School for the Blind, Ogden; and West Virginia School for the Blind, Romney. Sixty-four institutions serving blind and visually impaired persons have now received accreditation from NAC.

■ A three-year grant for \$62,340 has been awarded to the Southern California College of Optometry clinics by the California Department of Rehabilitation for the expansion of low vision services. The grant will make it possible for the college's two low vision clinics to provide rehabilitation, social and psychological services to their low vision clients.

■ Science for the Visually Handicapped (formerly Science for the Blind, Inc., Bala-Cynwyd) has become a division of Volunteer Services for the Blind (919 Walnut Street, 8th floor, Philadelphia, Pa. 19107). The divisions will be operating under the name of Recorded Periodicals and will continue to distribute scientific periodicals in braille, large type, and recorded forms.

■ The Santa Lucia School for the Blind, Asuncion, Paraguay, has been renamed the Santa Lucia Residential School for the Blind and Visually Impaired, and has moved to a new site: Morquio e/9 and 10, Barrio Bernardino Caballero, Asuncion, Paraguay.

■ The High Blood Pressure Information Center has a variety of free educational materials available for use by both professionals and lay persons. Information and order forms are available from the National Heart and Lung Institute, High Blood Pressure Information Center, 120/80 National Institutes of Health, Bethesda, Md. 20014.

■ In an effort to make people more aware of the hazards they create for blind persons a "Don't Obstruct the Blind" campaign was held in Hackney, England throughout the month of March. The campaign highlighted three common obstructions which could easily be avoided: hedges overgrowing the sidewalk, cars parked on the sidewalk, and owners not curbing their dogs. Special posters and flyers were distributed for the campaign by the Hackney Council's Social Services Directorate.



## CORRECTION

Legal implications of Solo Experiences in Orientation and Mobility Training, by Michael J. Bina

■ On page 227 of the above article in the June 1976 *New Outlook*, the breakdown by university of the 66 graduates of university orientation and mobility centers who answered the author's questionnaire was printed incorrectly. The correct figures are: 22 from Western Michigan, 17 from Boston College, eight from California State at Los Angeles, seven from Northern Colorado, seven from Florida State, three from San Francisco, and two from Pittsburgh.

## APPOINTMENTS

■ President's Committee on Employment of the Handicapped: **H. E. Van Orden**, Southeastern region representative, and **Richard Sheppard**, Mid-Atlantic region representative.

■ Alexander Graham Bell Association for the Deaf: **H. Latham Breunig**, president.

■ Chicago Lighthouse for the Blind: **Fred W. McDonald**, executive director.

■ Recording for the Blind: **Peter Brock Putnam**, president.

■ National Center for Health Education: **Robert L. Johnson**, president.

■ National Health Council: **Gerald B. Greenwald**, president.

## AWARDS

■ Outstanding Educator of the Visually Impaired Award, Illinois Office of Education: **Ruth Holmes**, Illinois Braille and Sight Saving School.

■ President's Committee on Employment of the Handicapped: Special Award—**Henry H. Kessler**, Director Emeritus, Kessler Institute for Rehabilitation, New Jersey; and Physician of the Year—**Joseph L. Goodman**, North Charleston, South Carolina.

■ John Hughes Dunnington Award, National Society for the Prevention of Blindness: **Frank W. Newell**, chairman, Department of Ophthalmology, University of Chicago.

## RETIREMENTS

■ Illinois Braille and Sight Saving School: **Jack R. Hartong**, superintendent.

■ Kansas Services for the Blind and Visually Handicapped: **Harry E. Hayes**, director.

## DEATHS

■ **Dr. Percy J. Trevethan**, former national executive director of Goodwill Industries of America and founder of the Rehabilitation Services Training Program at DePaul University, Chicago, on May 21, 1976.

■ **Ethel Heeren**, supervisor of rehabilitation teaching, Chicago Lighthouse for the Blind, on May 11, 1976.

## COMING EVENTS

### October

**4-6** American Diabetes Association, Eighth Allied Health Postgraduate Course in Diabetes, Topic: "Impaired Vision-Aids and Resources, Philadelphia.

**6-10** American Academy of Ophthalmology and Otolaryngology, Las Vegas.

**11-15** American Occupational Therapy Association, Annual Meeting, San Francisco.

**15** White Cane Day.

**17-21** American Public Health Association, 104th Annual Meeting, Miami.

**17-22** National Recreation and Park Association, Boston, Mass.

**19-21** General Assembly of the World Council for the Welfare of the Blind, Committee on European Affairs, Geneva.

**19-22** National Association for Retarded Citizens, Annual Convention, Indianapolis.

**27-30** National Rehabilitation Association, Annual Conference, Hollywood, Fla.

**28-31** International Congress of Sexology, Montreal.

### November

**7-11** The Society for Neuroscience, 6th Annual Meeting, Toronto.

**14-16** American Association of Homes for the Aging, 15th Annual Meeting, Orlando, Florida.

**17** National Accreditation Council for Agencies Serving the Blind and Visually Handicapped, Annual Membership Meeting, New York.

**19-23** American Speech and Hearing Association, Annual Convention, Houston, Tx.

### December

**4-8** American Medical Association, Clinical Convention, Philadelphia.

### American Association of Workers for the Blind, Regional Meetings:

**Mid-Atlantic**—September 29-October 1, New York.

**New England**—October 6-8, Portland, Me.

**Western**—October 27-30, Tucson, Az.

### Retinitis Pigmentosa Foundation, Regional Workshops:

**Indianapolis**—October 8-9.

**Los Angeles**—October 12-13.

**New Orleans**—October 15-16.

**Washington, D.C.**—October 22-23.

### 1977

#### January

**24-26** National Braille Association, Regional Meeting, Kansas City, Mo.

#### March

**1-4** World Council for the Welfare of the Blind, Executive Committee Meeting, Riyadh, Saudi Arabia.

**20-25** XI Pan American Congress of Ophthalmology, Santiago, Chile.

#### April

**14-16** European Regional Committee of the World Council for the Welfare of the Blind, Technical Aids Conference, London, England.

### May

**25-29** White House Conference on Handicapped Individuals, Washington, D.C.

**30-June 1** American Ophthalmological Society, Hot Springs, Va.

### June

**18-23** American Medical Association, Annual Convention, San Francisco.

### September

**25-October 8** American Academy of Ophthalmology and Otolaryngology, Dallas, Texas.

## Classified Listings

*Rates: Non-display—\$2.00 per line (minimum: \$10.00); Display \$13.00 per column inch (minimum: one inch). Anonymous, box-numbered ads are only accepted for personnel listings. Advertising is subject to editorial approval. A rate and information card is available on request. All correspondence should be directed to the Classified Advertising Department, New Outlook for the Blind, 15 West 16th Street, New York, N.Y. 10011.*

### AIDS AND APPLIANCES

Map kits and Handbook—For details contact: Dr. G. A. James, Blind Mobility Research Unit, Department of Psychology, University of Nottingham, Nottingham NG7 2RD, United Kingdom.

New Talking Electronic Calculator—the SPEECH PLUS™ from TSI is now available. Verifies all keystrokes and answers with 24 words from earphone or self-contained speaker. It is hand-held, rechargeable, and functions include percent, square root, memory, and automatic constant for easy 1/x and x2 calculations. #395.00 from either AFB or TSI. For more information contact: Telesensory Systems, Inc., 1889 Page Mill Road, Palo Alto, California 94304, (415) 493-2626.

### PERSONNEL

#### Situations Available

Now available from Rehabilitation Services, Inc., Suite 329-Dadeland Towers North, 9200 S. Dadeland Boulevard, Miami, Florida 33156:

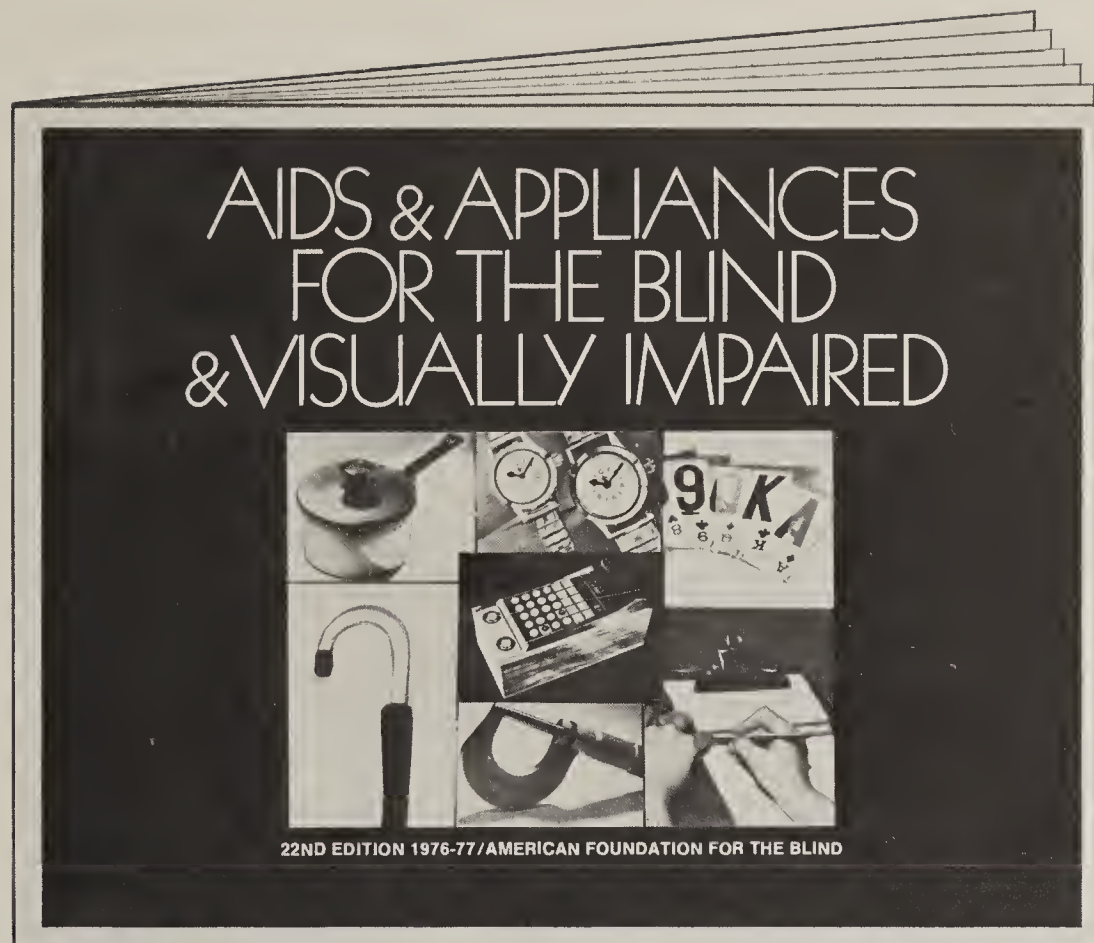
■ Typhlo Hi-Fi Cane, scientifically designed to promote mobility ease by affording durability, sensitivity, and optimal maneuverability, \$7.50, selection of sizes.

■ Typhlo Mobility Pin, a long cane with wings, multi-colored, fire kilned, hard enamel finish, \$4.98. Also available in same design are charm, tie tack, tie bar, and cufflinks.

■ Louis Braille Paperweights, a three-colored silhouette of Louis Braille on a polished white marble base, \$5.95.

Reduced quantity prices available on request.

Assistant or associate professor, Ph.D.—Masters' degree program in rehabilitation administration has a faculty opening for person with experience in rehabilitation services, rehabilitation administration or facilities management and job development and placement. Assist in coordination of on-going placement program for counselor for the blind. Research encouraged. Salary competitive. An affirmative action equal opportunity employer. Send vita and inquiries to: Louis Veceli, Coordinator, Placement Counselor Training, Rehabilitation Institute, Southern Illinois University, Carbondale, Illinois 62901.



The 22nd edition of the AFB Catalog of Aids and Appliances for the Blind and Visually Impaired is now in print. This 32-page catalog, which has been completely re-designed, lists over 300 different items; more than 50 are offered for the first time.

New features in this edition:

- ☆ Detailed index to allow easy location of any item
- ☆ Easy-to-use Order Form, complete with envelope for mailing in orders
- ☆ Listing of organizations in addition to the AFB that supply aids and appliances or information valuable to blind and visually impaired persons.

Copies are available free from:

AMERICAN FOUNDATION FOR THE BLIND  
15 West 16th Street  
New York, N.Y. 10011

Requests for the braille and disc editions, now in preparation, are also being accepted.





# THE NEW FOR THE BLIND

# Outlook

OCTOBER  
1976  
Volume 70  
Number 8

National Exhibit  
of Art by the Blind

"FOREST BIRTH" BY STEVE HANDSCHU





# THE NEW **Outlook** FOR THE BLIND

October 1976

Volume 70

Number 8

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# Parental Assistance in Orientation and Mobility Instruction

**KENT TYLER WARDELL**

*Mr. Wardell is an instructor in the Orientation and Mobility Training Program, Department of Special Education, California State University at Los Angeles.*

Parents of blind and partially sighted youngsters have frequently asked this instructor what they can do to help. "Can we as parents support the work being done by the orientation and mobility specialist?" The answer to this question is a resounding, "Yes!"

It is my feeling that constructive parental involvement is one of the critical factors in successful orientation and mobility training. However, the task is not easy. It demands patience, flexibility, creativity, and—above all—time. But the task is not impossible, and is well within the competence of almost all parents. For there is, deep within us all, a teaching quality that will surface and grow in strength given proper encouragement and reinforcement.

This article sets out to stimulate constructive parental action, and to dispel some of the fears that can be roadblocks to action. It offers guidelines that will channel parental efforts into areas best deserving their attention and talents.

This paper is the product of bits and pieces borrowed and refined through the years, and no claim to originality is made for the ideas stated here. They have been tried with parents and have worked, with varying degrees of success. It is hoped that this article will stimulate ideas and provide the impetus for parental action.

**KNOW YOUR SUBJECT** A rule for all good teaching is: Know your subject. Therefore the place to start is with a clear understanding of what orientation and mobility really is. Mobility is the physical act of traveling in a safe, graceful, and efficient fashion from one location to another. Mobility may be accomplished through the use of a human guide, long cane, or dog guide. Orientation may be defined as the mental ability to determine correctly one's present position in the environment, plan effective routes of travel to a destination, and efficiently use travel cues while in route.

In practice, orientation and mobility skills are closely interwoven into the fabric of independent travel. It is possible to be mobile and yet not oriented. Just as one can be oriented and yet not really mobile. A flaw in either area weakens the fabric. This interweaving takes place during an extensive course of training designed to develop the student's travel ability to a point as close as possible to total independence.

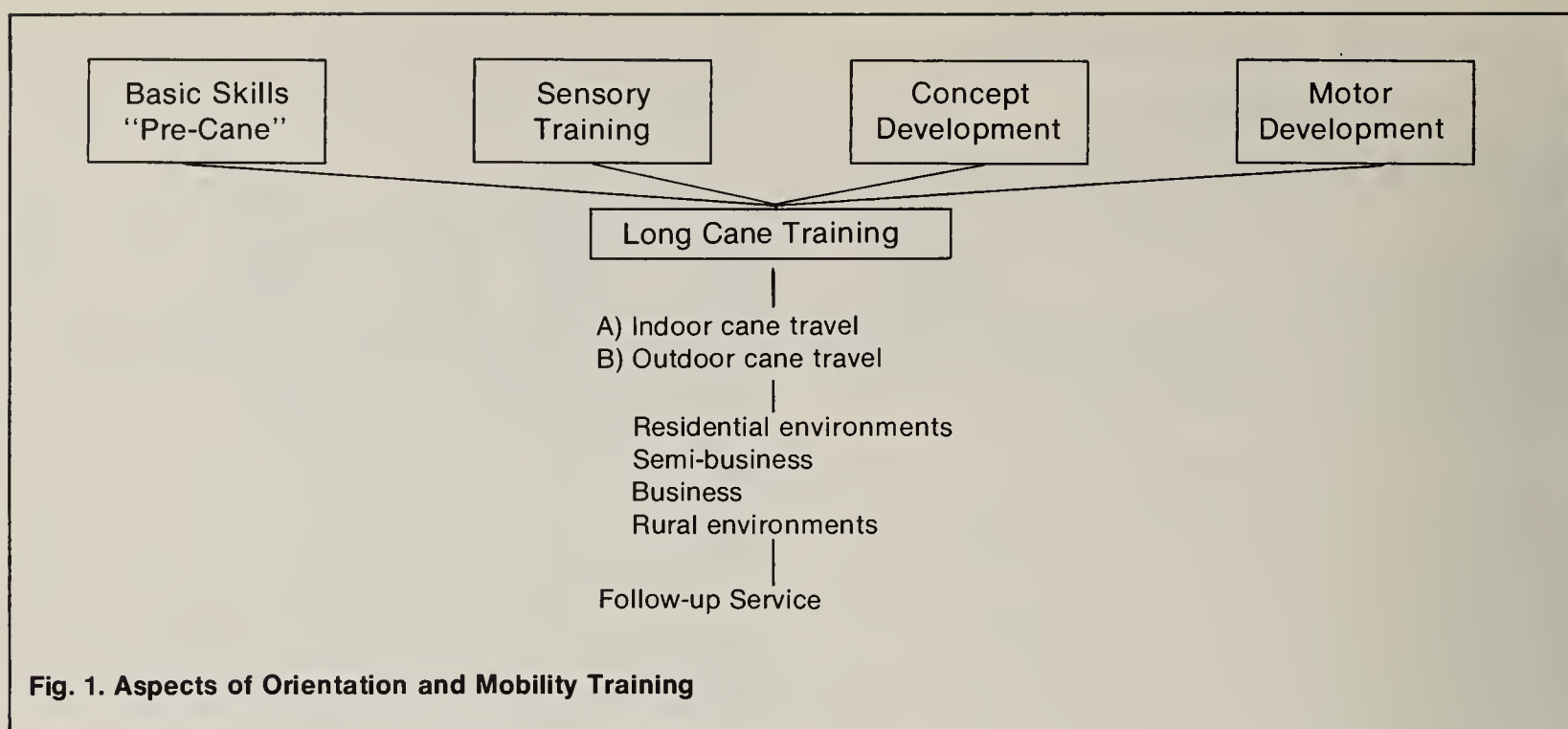
The course is taught by a university trained instructor called an orientation and mobility specialist, or a peripatologist. He provides the blind, partially sighted, or multiply handicapped student with a series of lessons progressing from basic protective techniques—designed primarily for safe indoor travel—to outdoor lessons emphasizing the use of a guidance device, such as the long cane.

The orientation and mobility course may encompass the training aspects shown in Figure 1, which depicts a fairly typical program for a congenitally blind student. But the program is by no means rigid. Orientation and mobility specialists attempt to keep training programs flexible, since they should be designed to fit the student and not to mold the student to the program. The differing portions of the training course do overlap and have been separated in Figure 1 only to facilitate discussion.

**BASIC SKILLS** Mastery of the basic skills provides the student with one of the first stepping stones toward the freedom offered by independent movement. It is important that the parents know what skills are taught during this

**Abstract:** *Parents of blind children can give important support to the professional orientation and mobility specialist, especially if they familiarize themselves with the various aspects of an orientation and mobility course of instruction. The use of occlusion is especially helpful in giving parents first hand experience with the skills the children will be taught. Suggestions are provided for parental assistance in the areas of basic skills, concept development, motor development, and long cane training.*





portion of training. Figure 2 shows the skills that would probably be included.

Parents should work with the orientation and mobility instructor to gain an understanding of the basic skills being taught. Under proper supervision the blindfold is a good teaching tool with parents, and may allow them to sample portions of the course of training. All parents are encouraged to seek, at a minimum, blindfold experience with the sighted guide skills. Even though a blindfold can never simulate "real" blindness, it can dramatize many of the concerns facing the blind traveler. A good understanding of these concerns will help parents and siblings to develop into better guides and better teachers in their own right.

Parental follow-up in the home environment is an invaluable adjunct to the mobility instructor's teaching. The assistance of interested and informed parents can be the key ingredient to the student's success in orientation and mobility. Parents should frequently discuss the daily lessons with their child and so reinforce the instructor's emphasis on the importance of the skills being taught. An even better approach, however, would be for parents to ask their child for a demonstration of the techniques learned that day. In this way, the mobility student receives added practice, and parents can keep abreast of the new material being introduced. The student will soon realize that he is not performing to please the instructor, but rather to learn important techniques used in all phases of his daily activity. The instructor should be informed regarding the student's use or disuse of the techniques in the home environment.

**CONCEPT DEVELOPMENT** The area of concept development is very important to the congenitally blind student. The concepts of 90° turns at corners, corners formed by intersecting streets, and the entire block pattern of a neighborhood are often completely foreign to their present understanding. Much of this information could be taught by parents. It would not necessarily require special teaching sessions since the instruction could be incorporated into the daily routine.

For example, a trip to the store could open a discussion of the route needed to get there. Perhaps the street is constructed in an east and west direction and yet the stores are

located on the north and south side of that street. The store may be near an intersection. What exactly is an intersection if you have never seen one? What are lanes of traffic? What is a traffic light and how does it differ from a stop sign? One question leads to another and the awakening process begins. The confusing environmental vastness begins to take shape mentally; the learning process from the abstract to the concrete begins. Parents should make every attempt to locate any voids or discrepancies in the student's conceptual understanding and be creative in their own teaching approaches to them. Parents should guide the child through the learning process of defining a concept, they should demonstrate the concept if possible, and find examples of the concept in the environment. Teaching of geographical directions can be aided through the use of a tactual compass. One example of a good tactual compass is the Silva Directional Compass sold by the American Foundation for the Blind. The child should be encouraged to carry the compass and begin thinking in terms of directional relationships.

Another teaching approach in this area of conceptual development makes use of tactual maps. The tracing wheel used in sewing provides an easy method by which parents can produce them. A sheet of braille paper is placed on a soft surface, such as a phone book or old magazine, and the diagram or floor plan to be traced is pencilled in. By going over these lines applying pressure to the tracing wheel, a raised outline is made on the other side of the paper. An alternate method of tactual mapping is the Raised Line Drawing Kit, which is also sold by the American Foundation for the Blind.

### Motor Development and Sensory Training

Parents can play a major role in the blind child's motor development. The key words here are purposeful movement. Recreational activities that will develop muscle tone and body stamina should be promoted. Good exercises are swimming, tandem bike riding, and jogging.

Several methods of jogging have been proposed in the past. One method simply calls for the sighted person to carry keys or change in his pocket. The blind individual uses the sound source as a directional guide. He can either run parallel to the sound (thus parallel to his jogging partner) or





Parents observe the mobility specialist teaching the sighted guide technique, then try the technique themselves.



he can follow the sound as the sighted individual leads the way. Another method of jogging calls for the sighted and blind individual to jog as a coordinated team. A cane or lightweight pole is held at chest level by both joggers with both hands and serves as a steering mechanism. Assume the blind person is holding the right side of the pole as the team is in motion. If the sighted person wishes to make a right turn he forces the right end of the pole downward indicating a right turn. Conversely, a left turn is indicated by elevating the right side of the pole.

All activities that encourage movement, balance, postural development, and environmental and sensory awareness should be encouraged. (Several publications describing such activities are listed in the bibliography.) Too many blind children have been taught a great fear of falling. No one would deny that due caution should be exercised and safety techniques adhered to, but since most children do fall from time to time, why are some blind children not permitted to fall at all? I have seen groups of congenitally blind school students asked to simply fall down on very thick padded mats. In response, some students assumed very rigid and contorted body positions and displayed extreme fear of falling. This fear was demonstrated even after they had been thoroughly familiarized with the thick padded mats. It was only after many hours of confidence building that some of these students could relax and flop down on the mats.

**LONG CANE TRAINING** When used properly, the long cane functions as a bumper and as a probe into the environment. An orientation and mobility specialist should determine the proper cane length for the blind student. He will consider factors such as length of the person's stride and walking speed, for the cane must be long enough to contact obstacles before the traveler physically contacts them and also provide the necessary warning time to stop. The cane is also designed to be a sensitive probe. The cane tip transmits tactual information through the cane to the finger tip of the blind traveler. A competent cane traveler can distinguish grasslines from the cement sidewalks, and the cement sidewalk from asphalt driveways, parking lots, or gas stations.

The cane is red and white in color for a specific purpose—it places the blind traveler under the protection of White Cane Laws. These are state laws that give the right of way to blind travelers carrying a white cane. The blind traveler is, as common sense suggests, taught safe procedures for independently crossing streets. He does not rely entirely on the White Cane Laws, but the distinctive cane does give him added protection.

There are many types of canes. Most orientation and mobility specialists prefer canes with the sensitive nylon tip. The non-folding canes provide good strength and durability. Folding canes, while convenient to store, lose some degree of strength and conductivity.

In my opinion, parents should not attempt to teach long cane skills. Improperly taught methods can make the student a dangerous and over confident cane traveler. Poor travel skills learned through uninformed teaching often become habits that are very difficult to correct. Nonetheless, parents do have a role in this area of cane travel. They should function in close cooperation with the orientation and mobility specialist and look to him for guidance in outlining the scope of these duties.

Parents could observe the instructor in the process of teaching their child. This provides an opportunity to see the skills in action. We have already mentioned the need for



# Parental Assistance

The mobility specialist explains the importance of the forearm technique.



students to gain confidence in their ability to travel independently, but this is also true for parents. The training will be of no avail if apprehensive parents do not permit, or fail to encourage, use of independent travel skills. The student should be given family responsibilities within his ability range. Among these could be trips to the mail box, errands to the neighborhood store, independent trips to the barber, or shopping trips to town for school clothes and supplies. The mobility instructor should work with parents to establish realistic practice routes.

Parents can make valuable contributions by serving as observers. They can communicate with the instructor and report on skills used and skills not used in the home area. When indicated by the specialist, parents may accompany their child on practice routes through the neighborhood. Progress and problems should be reported back to the instructor.

## Team Approach

We now have a true team approach. The instructor introduces the techniques and works with the student until he gains proficiency with them. The parents then provide practice sessions in order for the student to maintain this level of proficiency.

It is interesting to note that the instructor works with only one student at a time and adheres to strict safety precautions. This one-to-one-ratio provides an ideal opportunity for the instructor to learn the individual differences in his students and teach accordingly. He may elect to interrupt the normal teaching sequence to insert a series of special lessons devoted to specific weaknesses, such as difficulty of walking parallel with traffic sounds, inability to gain specific directions from the public, abnormal gait, or poor walking posture. The flexibility of the training program could also provide special lessons on rural travel techniques, and adaptive training for the student with residual vision.

The student progresses at his own learning rate and advances as far as his needs and ability will take him. The instructor then attempts to maintain periodic contact. The opportunity is provided for follow-up lessons, which try to maintain the student's travel proficiency. They also provide the opportunity to cope with any travel problems not anticipated during training.

The course involves much hard work and long hours of practice, but the prize more than equals the effort needed to achieve it. To some long cane travelers it is the sweet freedom to go wherever and whenever they please. To some it is the luxury of an evening walk alone, with time to think or walk off the tensions of the day. To some it is the key that unlocks old friendships, or the confidence to create new ones. Successful completion of a course in orientation and mobility brings benefits that transcend the realm of independent travel. For the blind person's total being is involved and he reaps such intangible rewards as increased self-confidence and the deep satisfaction of greater self-respect. ■

Note: For further information on the Silva Directional Compass and the Raised Line Drawing Kit mentioned in this article, contact: Director of Marketing, RTDD, American Foundation for the Blind, Inc., 15 West 16th Street, New York, N.Y. 10011.



## Figure 2. Basic Skills

Sighted Guide	The student is taught how to function as a team member with a sighted companion. Adaptations are taught to cope with the special situations such as narrow passages and doorways, pedestrian congested areas, stairs, and curbs.
Forearm Technique	A protective technique employing the hand and forearm across the upper portion of the body to protect the traveler from obstacles about shoulder and head high.
Lower Body Protective Technique	The hand and forearm are extended diagonally across the lower portions of the body to protect from objects such as desks and tables.
Trailing	A method of following a surface such as a wall to locate tactual information and landmarks or to establish a line of travel parallel to that wall.
Squaring Off and Direction Taking	Methods of projecting imaginary lines in the environment in order to travel from one position or object to another object or position in the environment.
Independent Room Orientation	A systematic method for a student to explore a room.
Location of Dropped Objects	Systematic search patterns that minimize the effort needed to independently locate dropped objects.
Social Graces	Such as special methods of locating the hand of another blind person wishing to shake hands with the blind student, perhaps identification of coins and paper money, locating objects on a desk or table.

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# Dog Guide Training for the Mentally Handicapped: An Interagency Approach

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Historically the requirements for obtaining a dog guide for mobility have been stringent. The potential dog guide user had to be physically strong, mature, and intelligent enough to control and care for the dog. This article, however, describes how two middle-aged men who are blind and mentally retarded were trained to use dog guides, thereby achieving a level of independence previously not possible for them. The training was accomplished through the close cooperation of an orientation and mobility program and a dog guide school.

Mr. Thomas is a 45-year-old male who spent the first eight years of his life growing up in Long Island. He became blind during childhood as a result of choroiditis cataracts. In 1939 he was admitted to a state mental facility where he spent the next 34 years of his life. Mr. Williams, 54-years-old, was also institutionalized in 1939 at the age of 18. His total blindness is a result of glaucoma. Both of these men have been labeled mentally retarded and have, because of their institutionalization, become somewhat socially and emotionally retarded. They were both released from the institution in the latter half of 1973 through a program to incorporate residents of the institution into the community. Upon their release from the institution, they were both placed in a home-care facility located in a small city in New York State. They began working at a sheltered workshop where it became very evident that they would both need extensive orientation and mobility training.

**INITIAL O & M TRAINING** The first contact with the mobility instructor was in February 1974. At this point, both of these men were totally dependent on their supervisors and peers for mobility. After the initial evaluation, the mobility instructor's first reaction was to teach those concepts and skills necessary for them to become route travelers within the work site. He had also hoped to prepare them for route travel in and around their place of residence. As the training progressed, the mobility instructor became aware that both men were very interested in owning dogs and possibly dog guides. After some careful consideration, he felt it could become a reality with the proper preparation. At this point, the instructor formulated a set of goals which he thought would have to be achieved in order to increase the likelihood of success in a dog guide program. The primary goal continued to be that they would both achieve a level of independence on their own in the event that placement in a dog guide program proved to be impossible or unsuccessful. Most of the secondary goals would be achieved through a standard orientation and mobility program. However it was felt that a heavier concentration should be placed on developing a few specific areas.

A great proportion of the time was spent on concept development and body awareness. Although they had both retained some visual memory from childhood and therefore had developed some environmental concepts, they both needed extensive body image remediation.

## Prerequisites to Using Dog

Sensory training also consumed a greater proportion of time in the preparation. The mobility instructor felt that it was extremely important that both men have an excellent awareness of their kinesthetic sense. This would be particularly valuable in negotiating 90 degree turns with the dog. It also seemed that they should be able to travel in a straight path and more importantly, to recognize any deviations made from that path. Similarly they should be able to

**Abstract:** Independence is a goal which all mobility instructors set for their students. In the case of two men who were labeled mentally retarded and institutionalized for 34 years, this goal was achieved through the cooperation of two agencies. This article traces their history, their specific orientation and mobility and dog guide training, the cooperation of the mobility instructor with the dog guide school, and the results.



recognize when they are walking on a slanted plane.

Development of the auditory sense was thought to be just as important an ingredient to success with a guide dog as with a cane. This included work on sound localization exercises, use of sound for identification purposes, and traffic alignment. Knowing that the dog guide would not be responsible for lining up to cross streets, the mobility instructor spent many hours emphasizing the importance of their being able to use the traffic sounds for alignment purposes.

Their use of tactual information continued to be important to success. They would need to be able to effectively explore objects in the environment and make use of the information received through their feet as well as the other modes of receiving tactual information. Although they would not have to interpret the information from the cane, they would still need to interpret the tactual and kinesthetic information received through the harness.

Spatial orientation was not dealt with as specifically as the other areas. However, much time was devoted to teaching them specific routes with the hope that they would be able to develop a knowledge of their environment by learning and expanding upon these routes. Because of popular misconceptions concerning the role of the dog guide, both students were consistently reminded that they would be making the decisions concerning orientation while traveling with the dog. Auditory maps recorded on cassette tapes proved to be especially valuable, as this enabled them to practice between lessons. After they had learned the routes, they were able to concentrate on developing their other senses.

The various protective techniques and procedures were covered in detail with particular attention being focused on indoor techniques as they would be using these with or without a dog guide. Outdoors, special attention was also given to street crossing procedures and recovery techniques. Other problem-solving situations such as veer recovery, obstacle circumvention, and disorientation recovery were also covered in detail.

**EVALUATION BY DOG GUIDE SCHOOL** After about 75 hours, a significant amount of progress had been achieved in all of these areas. Contact was made with the dog guide school to discuss possible referral into their training program. Reviewing possibilities, action was taken for a personal observation of the two individuals in their home area by a supervisor from the school. After a thorough evaluation, he recommended additional training by the mobility instructor with respect to procedures for street crossings and further orientation to the environment.

This initial visit by the dog guide school had helped to establish, for the first time, the fact that the goal was indeed possible and that much planning was necessary. Because of the novel nature of the training, it was decided that continued close contact between the two disciplines was a requisite. Immediate steps were taken toward acquainting the mobility instructor with the skills the men would need to acquire before entering the dog guide program. This was done through telephone calls, meetings, etc. These calls and meetings also helped the mobility instructor to familiarize the dog guide school personnel with regard to the specific methods and techniques which had been successful thus far. Once the training at the dog guide school had begun, the mobility instructor made visits to observe the progress they were making as well as the basic mechanics of working with a dog. This would enable him to carry out a more constructive

follow-up. The ultimate goal of this close contact was to provide a level of consistency and a smooth transition between the different phases of training.

At the dog guide school, various individual dogs were being considered and evaluated with regard to meeting the specific needs of their eventual masters.

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**“Because of the novel nature of the training, it was decided that continued close contact between the two disciplines was a requisite.”**

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After approximately three months of continued training, a second visit was arranged at which time it was determined that they were prepared to begin dog guide training. The total orientation and mobility program had lasted well over 100 hours and had covered indoor, residential, and very elementary small business travel. This was considered to be approximately twice as long as an average program covering the same areas. They had both learned and retained most of the basics necessary for indoor and residential mobility. One of the two men had been able to achieve a competence in orientation procedures and was, in fact, able to learn and demonstrate an understanding of compass directions as a basic reference system.

**DOG GUIDE TRAINING** In mid-November of 1974 they began their stay at the school. It was decided that since they had known each other since the time of their institutionalization, training together for a dog guide would help make for a more relaxed learning situation. Due to a slower rate of learning, it was felt that extra instruction would be necessary. To achieve this, one supervisor was assigned to work exclusively with the two men.

At this point, all dog handling techniques were practiced repeatedly without the use of a dog. As they became more adept in voice, balance, and small motor control, a pet dog who was capable of tolerating a considerable amount of repetition and handling, was introduced as a training aid. Once this became routine, they were assigned their individual dogs.

### **Selection of Dogs**

Matching the dogs to the students was based on prior knowledge of the individuals which included information concerning their balance, coordination, sense of direction and voice, as well as their physical ability to handle the animals. The dogs assigned were Golden Retrievers, a neutered male and female. Retrievers were used because of their friendly disposition and willingness to please. Of the two dogs, the female was a bit more active and responded very well to physical and verbal praise. She was assigned to the student who enjoyed giving the dog extra attention and who was capable of handling her while working or out of harness. The male, being more lethargic, was satisfied just to be with his master and was not demanding of any extra attention. For this reason, he was assigned to the second man who was slower and more methodical. This man had a speech impediment and a voice which lacked color and authority, but this made little difference to this particular dog. Both dogs had



very strong work patterns, minimum distractibility, and a good sense of responsibility. In addition to these qualities, they both exhibited a certain degree of stubbornness when it came to refusing a command or procedure if their masters were confused or in danger.

Formal training began in quiet residential localities and progressed to areas of increasing complexity. Curb positioning, traffic awareness, and 90 degree turns were reinforced. At times, a reminder of past instructional experiences helped to clarify specific learning situations. Public transportation was also included in the training since neither man had any prior experiences in this area.

Reassurance was a necessary ingredient in the dog guide program as the students, after making a few mistakes, were concerned about possible failure. There was also a saturation point at which time further information could not be absorbed. Time had to be allotted before new information was introduced. During the training, visits and observations by the mobility instructor were frequent.

As the training progressed, the students left the training center and the supervisor worked with both individuals daily in their home area. The basics were constantly reviewed and practiced.

Since it is important to maintain the proper balance of responsibilities between man and dog, participation of the orientation and mobility instructor during the training in the home area proved valuable in allowing both disciplines to recognize strengths and weaknesses of the working unit.

The total dog guide program had consisted of approximately four weeks of training. Although this is the normal amount of time taken for training, the content of the program was modified slightly to concentrate on residential and small business travel because of the nature of their home environments. Considering this factor and the individualized training which they received, the program was estimated to take approximately twice as long as the regular dog guide program.

**FOLLOW-UP TO TRAINING** Periodic follow-up over the past 18 months by the mobility instructor and the dog guide school representative has been a key factor to their continued success. Without this type of follow-up, minor difficulties could have developed into more serious problems.

Since their return from the dog guide program, both of these men have undergone tremendous social adjustment.

Mr. Williams left his employment at the sheltered workshop and moved out of the home-care center. He now resides in an apartment with a roommate who is also visually handicapped. He handles the daily responsibilities of life, attends church regularly, goes to social club meetings, and travels quite frequently throughout the community. His ability to orient himself to new areas of town has improved remarkably. This is due, in part, to his willingness to explore alternate routes rather than adhering to known ones.

Mr. Thomas also left his employment at the sheltered workshop and his room at the home-care center. He also moved into an apartment with a roommate. He started employment at another workshop and travels to and from work daily, a trip that is approximately one-half mile each way. He also attends church, goes shopping and belongs to a local social club. Mr. Thomas is still basically a route traveler. However, he now takes the initiative to learn new routes with the help of his roommate when the need arises.

It would seem that both of these men have achieved a level of independence that has enabled them to integrate themselves into society, an independence that probably would not have been possible without their dog guides.

The team participation of the two disciplines working together toward a common goal resulted in the clients becoming the benefactors of the expanded service of the interagency approach.

### **Selection of Potential Candidates**

To say that all mentally handicapped, or those over a certain Intelligence Quotient, could benefit from this kind of approach would be senseless. It can and has worked with two individuals who had tested I.Q.s within the 50-80 range and who had been institutionalized for 35 years. As for future candidates, perhaps the following guidelines could be suggested. Most importantly, does the individual demonstrate a desire to be independent by understanding and learning the basic skills and techniques that are involved? Can he retain these methods and skills from lesson to lesson in order to build upon them? Is he interested in training with a dog guide and is he fully aware of the function of the dog guide as opposed to the cane? Very importantly, is the individual prepared to handle the responsibilities of owning a dog—the feeding, grooming, exercising, etc.? If the answers are yes and the person can achieve the kinds of goals discussed earlier in this paper, then definite consideration should be made of this approach.

## **HEW Consults Public on Regulations**

The Department of Health, Education, and Welfare has announced that it intends to seek public input concerning the way it develops and issues regulations. "For too long HEW has gone to the public in these situations only to tell them what it intends to do," said HEW Secretary H. David Mathews. "From now on our first step will be to ask the people of this country what they think we should do." Mathews noted that the previous system, when the need for a regulation arose, was to consult with the groups having special interests and then to propose a regulation that often reflected their common preconceptions. Communication with the public will be through town-hall-type meetings, advertisements, public service announcements, news releases, mailings, the *Federal Register*, service organizations, and HEW regional offices.

## **AAWB Studies Architectural Barriers**

The American Association of Workers for the Blind (AAWB) has formed a standing committee to study architectural and environmental concerns, focusing on the special problems of blind, partially sighted, and multiply handicapped persons. The committee is interested in working with other groups, committees, or individuals who are involved in creating a barrier free environment for handicapped persons. Contact: Mr. Kent Tyler Wardell, Chairman of the Committee on Architectural and Environmental Concerns, c/o Orientation and Mobility Program, Department of Special Education, California State University, 5151 State University Drive, Los Angeles, California 90032.



# Para-Professionals In Mobility: Long-Term Implications

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Since its inception in the late 1940's, orientation and mobility instruction of the visually impaired has been struggling for professional identity and a recognized place in the fields of education and rehabilitation. As is the case with any of the professions as we know them, mobility instruction has had its share of controversy. The role of the para-professional in the mobility program is one such controversial area. The purpose of this paper is to explore the role of the para-professional in relationship to his professional counterpart, the certified orientation and mobility specialist. To do this we must first look briefly at the history of mobility instruction as a profession, and then concentrate on the attitudes and duties of the certified mobility specialist as a professional. It is in this context that we can better understand the true role, if any, the para-professional may play in today's mobility program.

It is not my intention to give here a detailed history of mobility as others have done (Bledsoe, 1969; Shaw, 1970; Voorhees, 1962). But it is necessary to view the profession from a historical vantage point so that we can better assess past, present, and future trends.

**HISTORY OF MOBILITY** The modern techniques of mobility instruction first developed under the leadership of Richard Hoover at Valley Forge Hospital near Philadelphia, Pennsylvania, toward the end of World War II. Hoover developed the long cane as we know it today and began structuring a method for using it, which many still call the "Hoover technique." Workers at the Veterans Administration Hospital, Hines, Illinois, researched and extended the technique until it was recognized that a viable program of instruction was possible (Voorhees, 1962).

Gradually instruction proved successful and various civilian agencies and rehabilitation centers recognized the need for trained instructors. In June 1959, the American Foundation for the Blind conducted a national conference on orientation and mobility, which was sponsored by the Office of Vocational Rehabilitation. It was attended by personnel from various agencies who had been teaching mobility to blind individuals. The conferees concluded the following: Effective mobility instruction required specified teachers whose primary function was teaching mobility; a special training period of no less than one year of graduate study was necessary to become an instructor; such instructors must out of necessity be sighted; and, a minimum standard for the selection of instructors must be established.

It was the consensus of the conference that it would be a very great error for any established and recognized authority to support training of mobility instructors with a special learning period of less than a year of graduate study. Hazard to life and limb of blinded trainees, later to be under tutelage, was a consideration in this time element . . . (Voorhees, 1962).

As a result of this conference, two principle graduate programs were established at Boston College (1960) and Western Michigan University (1961).

These founding fathers of modern mobility instruction were far-sighted enough to see that the mobility specialist had to be more than a technician. With the establishment of the graduate level university training programs, the entire blindness system finally realized its goal of insuring professional services to visually impaired individuals. It was from this modest beginning, then, that blind persons began to receive quality and consistently professional instruction, a

**Abstract:** *The role of the para-professional in the modern orientation and mobility program is discussed. A brief history of the mobility profession is recounted to give a proper perspective in which to view present and future trends. The para-professional is then compared with his professional counterpart, the certified orientation and mobility specialist. The attitudes, duties, and goals of the mobility specialist and his profession are explored in relationship to those of the para-professional. The author concludes that the profession is too young and the historical trend too contradictory to permit acceptance of para-professionals in the mobility program at this time.*



trend that continued as all areas of education and rehabilitation revised standards and upgraded personnel.

**BEGINNINGS OF PROFESSIONALISM** Profession is defined in *Webster's* as "an occupation requiring advanced training in some liberal art or science." The discipline of mobility instruction now meets and fulfills this definition. In addition, mobility instruction is constantly expanding and refining the quality of its services. New methods of teaching and new mobility aids such as the Sonicguide, the C-5 Laser cane, and the Russell Pathsounder, are constantly improving and upgrading the discipline. Student teaching and internship experiences are taking place in a variety of institutional settings, such as civilian agencies, rehabilitation centers, residential schools, nursing homes, Veterans hospitals; and now include working with the multiply handicapped blind.

As mobility specialists became involved with more types of blind individuals, they became more interested in the blindness system as a whole. Interest Group IX was established as part of the American Association of Workers for the Blind (AAWB). Standards for instructors and instruction were set nationwide, and certification requirements were designed to insure competent instructors and consistent instruction. Recently, a Code of Ethics has been adopted by the interest group to protect both the instructor and the consumer, and enforcement of the code is forthcoming.

As one can see, the history entails a mere 30 years from conception, and just 16 years since the establishment of the graduate level university training programs. We have come a very long way in a short time; few professions can rival the rapid growth of this field. But perhaps we have grown too quickly. We have strived continually to improve our teaching methods and upgrade our personnel in order to provide quality services to the blind consumer. We have become involved in many areas of rehabilitation of the blind. Often we have been forced into the roles of instructor, counselor, physical therapist, or low vision specialist for either the lack of other professionals where we work or simply because we must deal with the total individual. These additional responsibilities have overwhelmed and disillusioned many instructors throughout the nation, causing some to leave the field entirely. Others have narrowed the scope of their instruction by working only with geriatric or retarded clients, and some have attempted to enter other professional fields, becoming para-professionals, themselves, as is the current trend in the low vision field. But there are still others who have tried to ease their responsibilities by pushing for the mobility aide.

### The Dilemma of Manpower and Money

The graduate level training programs, mysterious mobility committees, and federal officials—who determine the fate of mobility instruction as a profession—have attempted not only to turn out more instructors but to give them several areas of expertise to help alleviate the lack of manpower and money. This desire to maximize and economize has created two new groups of orientation and mobility instructors: the undergraduate instructor, who automatically receives a lower salary by virtue of his bachelor's degree; and the dual degree graduate instructor, who opens up other avenues of instruction but at the possible expense of thorough mobility training. It seems, then, that instead of continuing the policy of upgrading our profession we may be reversing the historic trend by condoning the use of undergraduate instructors, agency-trained mobility instructors, and other para-

professionals; and more recently, by experimenting with dual degree master's instructors.

**MOBILITY AIDES** This new breed of mobility instructor may in the long run hurt the trend for consistent, professional instruction for which we are continually striving. Agency trained instructors and mobility aides primarily came into being to fill the gap in the number of available instructors to the blind population. It was felt that some instruction was better than none at all. But, as Cosgrove (1961) warns, "The client who is introduced to mobility by an incompetent instructor is introduced to danger and is subject to repeated failure. His failures then breed fear." Usually mobility aides are trained and supervised by some well-intentioned mobility specialist. As reported by the Ad Hoc Committee on Mobility Aides of Interest Group IX many of these agency-trained personnel were called "mobility specialist" or "mobility instructor" upon completing no less than six weeks and no more than six months of instruction. The curriculum of each was varied, if not sketchy, while the content was not revealed in the survey (Crouse, *et al*, 1974). In a follow-up questionnaire submitted to the general membership of Interest Group IX prior to the national AAWB conference in Atlanta, Georgia, in July 1975, most mobility specialists responding felt a need for mobility aides but under close, direct supervision.

Three primary questions arise from these surveys: First, how will such close supervision free the mobility specialist to attend to more important matters? Second, under what conditions can he leave the aide and client alone? And third, what happens to the aide when he leaves the agency and seeks a position as a mobility specialist in his own right?

Undergraduate instructors must continue on for their master's degree usually within five years in order to be certified, but their master's degree does not have to be in mobility instruction. This raises some questions about their previous skills: Why is it felt they need a higher degree to be certified? Will the graduate schools be giving them real specialty skills beyond their undergraduate training?

The structure of the dual degree graduate program depends on the institution being considered. However, these facts are certain: The dual graduate is prepared to teach a variety of subjects in addition to (not necessarily in conjunction with) mobility; he is taught in relatively the same amount of time as the regular graduate; and, in one program he can even receive a mobility degree with only six months of additional training added on to his primary major. It is evident that either the course work or the feeling of professionalism inherent in the single master's degree (or both) are forfeited under such a structure. It would be interesting to see some statistics on how many of the graduates of such programs are teaching only mobility. If the percentages are sufficient, then are such programs really of any benefit?

The common goal of the entire blindness system is to provide quality services to the blind consumer. We in the mobility profession have endeavored to set the highest standards possible for our clients so they may attain their maximum potential. This means our primary duty is to help our clients become safe, efficient, graceful, and independent travelers in all travel situations. This is our end product; some will reach this ultimate goal, others will not. Those who do make it will regain or discover a sense of pride, accomplishment, and freedom unparalleled in the blindness system. Those who do not succeed will have at least reached their potentials and will have the satisfaction of knowing that



they were given an opportunity never offered their predecessors. At the very least they will be individuals better off than they were before receiving instruction.

By its very nature the relationship between mobility instructor and client must be one-to-one. From the onset of the program the mobility instructor is developing a personal but professional relationship and rapport with his client. The client must learn to have complete trust in his instructor and must be aware that the instructor's main concern is the client's safety. The specialist is helping his client to see that the frightening, confusing, and sometimes overwhelming environment around him is consistent, organizable, and conquerable. As the client begins to climb the ladder toward independence he is continually growing and changing. The mobility instructor must be in tune with these changes and allow his client to assert his increasing independence.

In order to help his client attain this standard of excellence, the mobility specialist must recognize the need to be more to his client than just a good instructor. In order to serve the total individual, the mobility specialist must possess a wide spectrum of knowledge in such diverse fields as psychology, sociology, counseling, special education, medical physiology and diseases, as well as the basics inherent in his own discipline. As Welsh (1972) states, "The mobility instructor must understand and contribute to both the psychosocial adjustment and problem-solving ability of his clients" in addition to the "cognitive aspects of the [mobility] experience." Preparing mobility instructors to meet such demanding and varied needs requires intensive and extensive training. No program is better suited for this training than the graduate schools.

### The Use of Para-Professionals

Where do para-professionals fit into the orientation and mobility program? It has been suggested that mobility aides can free the mobility specialist from such chores as paperwork and drill so that the professional can concentrate on the higher levels of instruction. But is there really any duty involving the client that can be delegated to someone else without damaging the instructor-client relationship? So much of the client's safety depends on an absolute trust in his instructor that it is essential to keep this close, one-to-one relationship intact. Then there is the crucial question—If the specialist is reserved for only "high level instruction" will the client consider the portions taught by the para-professional as equally important?

The quality of instruction given by para-professionals must also be considered. Their limited training simply has not prepared them for the subtleties of instruction (such as veering, noticing the client's fear through a suddenly tense arm or grimace, sequential lessons). In travels across the country I have seen the work of para-professionals and have noted not only the inconsistencies in instruction, but also the inadequacies.

### THE FUTURE OF GRADUATE PROGRAMS

Even the best programs for training mobility specialists, the graduate level programs, have met with criticisms. All too often mobility instructors in the field have not been prepared to meet the challenges they have to face. This is in part due to the fact that graduate schools cannot train us for every conceivable client and situation. But, also, orientation and mobility is still a very young profession. As a profession we are still searching, defining, testing our roles and methods of instruction. Yet, it is this very reason that makes it even more

essential that we avail ourselves of the best and most thorough training possible. Rather than condoning lower standards, using stop gap alternatives to the graduate schools, or simply criticizing their programs, we should be working actively to upgrade them.

Perhaps the best place to start this upgrading is in the selection of candidates for graduate programs. Potentially poor candidates could be weeded out through more thorough screening, and a policy could be instituted to fail the internship of any student who does not meet professional standards. Likewise, the internship of any trainee who needs additional experience could be extended (as is the case with most other professions). More programs (on the graduate level) are needed to meet the rising consumer demand. And all mobility programs could benefit from the establishment of a National Orientation and Mobility Committee, composed of working professionals, to supervise training schools and maintain standards.

The demands placed upon mobility specialists in the field are the very reasons that we must expect the highest possible standards from not only our graduate schools but also from our colleagues. We are pioneers in a field still in its infancy, and at times the only saving grace we have enjoyed when trying to change outmoded methods and ideologies has been our unyielding belief in our profession, our skills, and our potential. Until we grow some more, make greater inroads, become more firmly established as a profession, and discover what really works and what does not, we should not even be considering using para-professionals for mobility instruction.

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## The Sounds of Love

A nationwide public service program called Voice-A-Gram was launched in May to help alleviate the loneliness of handicapped persons in institutions. Voice-A-Gram provides a communications link between persons in health care facilities and their families and friends through tape recorded messages, called "The Sounds of Love." These messages give news of the resident's recent activities and personal greetings. When the tape is received by the family they can answer by just flipping the cassette over and recording a return message.

Organizations participating in Voice-A-Gram are provided with a complete "how-to" kit, which includes tips on interviewing, promotion and public relations techniques, instructions on organizing volunteer assistance, and cassettes. For further information contact: Voice-A-Gram, P.O. Box 127, Cos Cob, Connecticut 06807.



# Braille Reading: Factors Affecting Achievement of Dutch Elementary School Children

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**Abstract:** *This study compares reading skills of visually impaired children with those of sighted children. It also investigates the relationships between reading achievement and residual vision, hand movement during reading, verbal intelligence, and haptic perception. The blind children took some 2½ times as long as sighted children to read separate unrelated words, though poor braille readers tended to lag farther behind poor sighted readers than good braille readers lagged behind good sighted readers. Amount of residual vision bore little relationship to reading ability, but the way a child moved his or her hand during reading bore a strong relationship. Verbal IQ, as measured on the verbal section of WISC, showed a stronger relationship with reading achievement than did haptic perception. Of the various haptic measures used, form discrimination and figure orientation were more important than size and roughness discrimination.*

There are many gaps in our knowledge about braille reading and filling in these gaps will inevitably be a slow process. But research done in Holland between 1970 and 1974 will, we hope, further the development of theoretical insights and improve the methods used for teaching braille to blind children. This Dutch research had a practical aim: The standardization of a number of braille reading tests for use in elementary schools. Since data collection was both time consuming and expensive, other data presumed relevant to braille reading were collected at the same time. The following variables were investigated: Verbal intelligence, haptic perception, residual vision, posture and hand movements when reading.

Fortunately there are few blind children in Holland. If we except blind children with additional handicaps, the number in the age group 6 to 15 is only about 120. Therefore all 120 blind children of normal intelligence were investigated. To ensure that the norms of the reading tests would be fairly reliable, results had to be accumulated over a number of years. Data were collected between 1970 and 1973.

**BRILLE READING TESTS** To compare the reading achievements of blind and sighted children, reading tests for sighted children were embossed in braille. Some of these reading tests had been standardized or restandardized in 1971 on a representative group of nonhandicapped sighted Dutch children. As a result a reliable comparison of reading achievement was possible. The following reading tests were used in the investigation:

- a) A speed test of separate (unrelated) words (SBW: Speed Test of Braille Words). With sighted children the score is the number of words read correctly in one minute. Braille reading is much slower, and the blind children were allowed 2½ minutes reading time. This test has two parallel forms.
- b) A speed test composed of separate (unrelated) sentences (BZL: Braille Sentences Reading Test). The score is the number of words read correctly in two minutes. This test also has a parallel form.
- c) A power test of 100 words ranked by difficulty (MLB). The last 50 words of this test are very difficult, and children frequently do not understand them, e.g., metabolism, obscurantism, propaedeutic. The score is the number of words correctly understood. This test has only one form.
- d) Tests for reading comprehension. Three different tests were used: One for ages 9 and 10, one for ages 11 and 12, and one for ages 13 and 14. These tests consisted of short stories with multiple choice items and they were designed for the third, fourth, and sixth grades of Dutch elementary schools.

All of these tests were printed in Grade 1 braille, because in Holland contracted braille is used by older students only for taking notes—hardly ever for reading.

## Reliability of Reading Tests

Since the age variance of the group being investigated was large, reliability indices were calculated for one-year groups. The test-retest reliability for the SBW and the MLB, with a time interval of six months, was about .90. Pearson correlations between the parallel forms of the SBW and the BZL always fell above .94. The average split-half coefficient of the MLB was about .95. In the reading comprehension tests reliability was estimated by the K.R.20 formula. Here the average reliability was about .94. We are therefore justified



in concluding that the braille reading tests have very good reliability.

The speed test for braille words (SBW), the braille sentence reading test (BZL), and the power reading test for braille words (MLB) were administered in the same way to all children between ages 6 and 14 years. From these tests a pattern of the development of braille reading has emerged. Figure 1 shows how reading ability develops with age. To give an idea of the variances in the different age groups the 10th and the 90th percentiles are shown along with the median. It is clear that reading speed continues to increase, but the rate of increase is slower in the higher age groups. It is noticeable that the variance remains large, but is smaller in the better braille readers than in the poorer readers. This difference is more apparent in the power test than in the speed tests.

### Correlations Between Reading Tests

A high degree of relationship was found between the braille reading test scores. As Table 1 shows, the correlations in the older group were lower than those in the younger group. This suggests that over time a clearer differentiation develops between the various aspects of braille reading. The intercorrelations of the same tests administered to sighted children were noticeably lower (Mommers, 1973a), especially on the reading comprehension tests. It therefore seems likely that technical aspects of reading play a greater role in the reading comprehension of blind children than they do in sighted children. But it is also possible that in blind children verbal intelligence more strongly influences technical reading achievement than it does in sighted children, because braille reading is more complex and difficult than reading ink print.

**COMPARISON WITH SIGHTED CHILDREN** For a comparison of the reading ability of blind children with that of sighted children, three elementary school age groups were chosen, averaging 7 years 5 months, 9 years 8 months, and 11 years 5 months. Good, average, and poor readers were distinguished by calculating the 10th, 25th, 50th, 75th, and 90th percentiles.

Table 2 gives the results of the reading speed comparisons. It should be noted that with sighted children the score is for one minute, while that of blind children is for 2½ minutes, since sighted pupils seem to read the separate words 2½ times faster than blind pupils. Poor braille readers lag relatively further behind poor sighted readers than good braille readers lag behind good sighted readers.

Table 3 gives results of the comparison of the reading power of sighted and blind children. This power depends on the degree of difficulty of the matter to be read and there is no time limit. In this test blind pupils did not fall as far behind as they did in the speed test. But again poor braille readers lagged relatively further behind the poor sighted readers than the good braille readers lagged behind the good sighted readers.

Scores on the reading comprehension test are more difficult to compare because the age groups of the sighted and blind pupils differ. However, there is evidence that the differences in reading comprehension are more like the differences found in the power test (MLB) than those in the speed test (SBW). A comparison of the reading achievements of blind persons with those of the sighted is more complicated than is often realized. It is necessary therefore to distinguish carefully the different aspects, while also recog-

nizing that the content of the test influences the size of the differences. Despite these limitations, we can obtain some idea of the order of magnitude of the differences. When planning curricula for blind children one must bear in mind that blind children take much longer to read a book than do sighted children.

### Pupil Characteristics

Lowenfeld, Abel, and Hatlen (1969) have carried out research into the characteristics of efficient and inefficient braille readers. They used a precoded questionnaire which was answered by the teacher. This questionnaire was adapted to the Dutch situation. There were also two simple tests of residual vision: One of color perception and one of dot perception.

By means of cluster analysis an attempt was made to clarify this complex of variables. The aim of cluster analysis is to group large numbers of variables into smaller numbers of mutually exclusive classes in which the members have similar characteristics. The first step was to choose 19 items from the 1970 data in which the answers showed sufficient variance. These variables were dichotomized, whereby phi-coefficients were calculated between all these variables. Three different statistical techniques were then used to identify clusters. The easiest technique was to omit all coefficients smaller than .30. In this way two clusters were found, as shown in Figures 2 and 3. The first cluster deals with residual vision and spatial orientation. This cluster discriminates between the totally blind and those with residual vision. The second cluster is mainly concerned with the reading hand.

A more sophisticated means of finding clusters is Johnson's hierarchical cluster analysis (Johnson, 1967). The resulting clusters are not exactly the same, but are basically similar to those of Figures 2 and 3.

A third way in which to find clusters is the iterative cluster analysis of Boon van Ostade (1966). This analysis starts with the two variables which show the highest correlation coefficient. After that another variable is selected which has the highest correlation with the first two variables, and so forth. When no variable is left with a correlation of at least .30 with the set of the selected variables, the procedure stops. In this way almost identical clusters were found. The first cluster was exactly the same as in Figure 2. The second cluster was the same as that in Figure 3, except that Variable 10—the student's posture while reading—was not selected. Variable 10 was not therefore considered in further analysis. The Pearson correlation between both clusters was .23. By calculating the (sum) score of each student in both clusters it was possible to summarize for further investigation the most important variables in the questionnaire.

Table 4 gives the correlation coefficients between technical reading (recognition skills) and the two cluster scores. It appears that Cluster I (degree of blindness) barely correlates with technical reading, suggesting that residual vision has scarcely any influence on technical reading achievement. But Cluster II, the reading hand, shows substantial correlations. Table 4 also shows a distinct correlation between Cluster II and reading comprehension. The correlation in Comprehension Test Grade Level IV is obviously lower because this test was too easy and consequently showed little variation. The correlations between reading comprehension and word recognition skills are also high. These coefficients are substantially lower in sighted children of similar age (Mommers, 1973a).



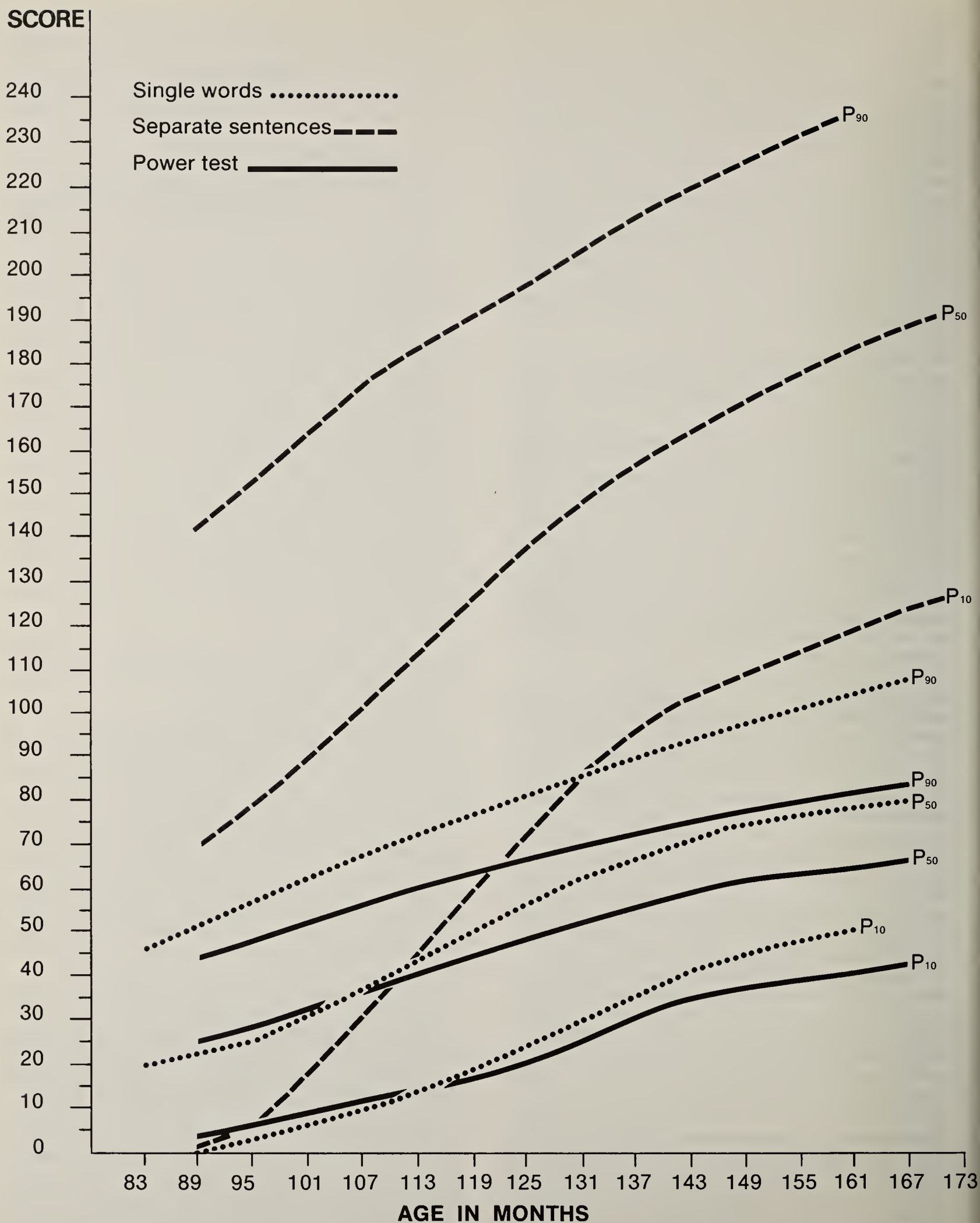


Figure 1. Development of Braille Reading Speeds on Three Tests

**Table 1. Pearson Correlations: Reading Tests.***Total group (range of age in months: 80-174).*

	I	II	III
I Speed test: words	1.00	.93	.89
II Speed test: sentences		1.00	.88
III Power test: words			1.00

*The eldest group (range: 150-174 months)*

	I	II	III	IV
I Speed test: words	1.00	.76	.68	.64
II Speed test: sentences		1.00	.75	.61
III Power test: words			1.00	.80
IV Reading comprehension				1.00

*A younger group (range: 102-126 months)*

	I	II	III	IV
I Speed test: words	1.00	.97	.95	.75
II Speed test: sentences		1.00	.90	.67
III Power test: words			1.00	.73
IV Reading comprehension				1.00

**INTELLIGENCE AND HAPTIC PERCEPTION** Previous research has shown that verbal intelligence is an important independent variable in relation to reading achievement (Lowenfeld, 1969; Nolan, 1969). Data on intelligence were collected by means of the verbal section of the Wechsler Intelligence Scale for Children (WISC) including the Digit Span subtest. As this test is not standardized in Holland, an investigation was carried out later to examine any differences between blind and sighted children. Despite the fact that some differences were found, it appears that the verbal section of the WISC can be used confidently with Dutch blind children. Hopkins (1966) and Tillman (1967) have already shown this with American children.

Active touching ability was investigated with the help of five different haptic tests (Mommers, 1974). The first test was Nolan's Roughness Discrimination Test, which consists of a set of 69 cards on each of which are mounted four pieces of sandpaper. Three of these pieces are alike, but one is rougher or coarser than the others (see Fig. 4). The task of the pupil is to find the one piece of sandpaper that feels different from the others. After the first administration of this test, which was followed by an item analysis, 35 items were eliminated as too easy for the older children. This is quite understandable because this test is designed as a reading readiness test. The remaining 34 items discriminated well.

The second test was Crandall and Hammill's Tactile Kinesthetic Form Discrimination Test. This test was developed at Temple University and consists of a series of 25 items each composed of various three-dimensional geometric forms embossed on thin plastic sheets. Subjects identify by touch similarities and differences between these forms (see Fig. 5). In the first part of the test, subjects select the one form that is different from the other four. In the second part, subjects select one of four figures which is similar to a given figure. The group being investigated in Holland seemed to find this test fairly easy—eight items were eliminated because they were too simple.

Three new tests, analogous to the Form Discrimination Tests, were then developed: The Haptic Size Discrimination Test, the Haptic Figure Orientation Test, and the Haptic Object Discrimination Test.

In the size discrimination test the blind children must distinguish the size differences of figures embossed on plastic cards (see Fig. 6). Révész (1955) has pointed out that the haptic sense is also a measuring sense. Therefore it seemed important to collect data about this aspect.

The figure orientation test (Fig. 7) was designed to be analogous to Edfeldt's Reversal Test (1954). As was shown in

**Table 2. Comparison of Reading Speed (single words) at Three Age Levels.**

AGE PERCENTILES	89 MONTHS		113 MONTHS		137 MONTHS	
	Sighted group 1 min.	Blind group 2½ min.	Sighted group 1 min.	Blind group 2½ min.	Sighted group 1 min.	Blind group 2½ min.
P <sub>10</sub>	17	4	41	15	59	36
P <sub>25</sub>	28	12	54	31	68	51
P <sub>50</sub>	40	24	64	46	78	68
P <sub>75</sub>	52	38	73	63	87	83
P <sub>90</sub>	63	55	81	74	96	92



**Table 3. Comparison of the Reading Power (graded word list) at Three Age Levels.**

AGE PERCENTILES	89 MONTHS		113 MONTHS		137 MONTHS	
	Sighted group	Blind group	Sighted group	Blind group	Sighted group	Blind group
P <sub>10</sub>	16	4	33	14	53	31
P <sub>25</sub>	23	13	40	29	60	45
P <sub>50</sub>	29	24	49	42	68	58
P <sub>75</sub>	37	32	58	52	75	67
P <sub>90</sub>	46	44	67	61	80	74

Ashcroft's study (1960) the structure of the braille code probably gives rise to more reversals than normal ink print. Investigation of haptic figure orientation was therefore important. The distractors in the items were obtained by rotation or the mirror images of the stimulus figures. The format in which the items were elaborated is almost the same as in Crandall and Hammill's test. Despite the fact that the size discrimination test and the figure orientation test were designed in relation to very specific aspects of haptic perception, in both tests form perception plays a part.

The various principles that Révész distinguishes in relation to haptic perception, such as the successive principle, the movement principle, the analytic constructive principle, measuring tendency, and optical transformation, all play a role in the above tests. However the stereoplastic principle is hardly represented. The embossed figures are, strictly speaking, three-dimensional, but perception and recognition will probably depend on two-dimensional data. In the embossed figures the cubic phenomenon is hardly present. Where Révész speaks of the stereoplastic principle, he is referring to that type of haptic perception where the object can be touched on every side. The "touching" of three-dimensional objects is not the same as the "touching" used in braille reading, but it does have a direct relation to the haptic subsystem of the hands. A test was therefore constructed of separate three-dimensional objects. The pupil has to discriminate the one object which is slightly different from three other similar objects, such as little plastic soldiers and animals, buttons, and screws.

### Intelligence, Haptic Perception, and Reading

To obtain some indication of the connection between reading achievement and performance on the WISC subtests and the haptic tests, partial correlations were computed, holding age constant (see Table 5).

The highest correlations were found in the WISC verbal subtests, within which the Comprehension and Similarities subtests showed slightly lower correlations than the other verbal subtests. The correlation with haptic perception was generally lower. Especially noteworthy is the low correlation with the Roughness Discrimination Test. This agrees with Révész's observation that roughness discrimination plays only a small role in the reading of the skilled braille reader. The tests in which haptic form discrimination and figure orientation play an important role prove generally to have a greater relationship with reading than do haptic size and roughness discrimination tests.

To get a clearer picture of the relationship between the tests, use was made of smallest space analysis (Guttman,

1968). This technique uses the sequences in the distances of association measures between the tests. In this case these are the correlations between the tests. Figure 8 gives the results of a solution in two dimensions. All the reading tests are in the middle, but the speed tests (12, 13, 14, 15) and the power test (16, 17) are easily distinguishable. With the exception of the Comprehension subtest (2) all the verbal WISC subtests are situated nearer the reading tests than are the haptic tests. The haptic roughness discrimination test (7) and the haptic size discrimination test (10) are the furthest removed from the reading tests.

Further, we can see from the centroid that various tests lie on different sides. The whole space can therefore be divided into two big sectors: A verbal intelligence sector (I) and a haptic sector (II).

The verbal sector can be subdivided again into language development (IA), arithmetic (IB), and short term memory (IC). The haptic sector can be divided into form discrimination (IIA) and roughness discrimination (IIB). The fact that the arithmetic sector is closest to the form perception sector is not surprising. It is known that arithmetic correlates with figural-spatial aspects. More difficult to interpret is the fact that the short term memory sector (IC) forms the transition between language development (IA) and roughness discrimination (IIB). It seems likely that ability to concentrate plays a role in Digit Span as well as in roughness discrimination tests.

### Summary

1. The reading speed of separate words by sighted pupils is at least two to three times quicker than that of blind pupils. The differences in reading power and reading comprehension are much smaller.

2. Poor braille readers lag relatively further behind the poor sighted readers than the good braille readers lag behind the good sighted readers. This fact reinforces Nolan's and Kederis's presumption that "the intellectual cut-off point for serious consideration of reading as an educational vehicle may be much higher for braille than for print" (Nolan & Kederis, 1969, p. 47).

3. Technical skills needed for reading continue to develop until at least 15 years of age, with both good and poor braille readers.

4. The degree of blindness as operationally defined by the variables of Cluster I (e.g., residual vision, age of onset of blindness, and space orientation), shows hardly any relation to the reading achievement of the pupils investigated.

5. The variables of Cluster II, which concerned the reading hand, show a substantial relationship with reading

Figure 2. Cluster I: Degree of blindness

Phi coefficient  $\geq .30$

- 19 = Residual vision (dot perception)
- 18 = Residual vision (color perception)
- 15 = Space orientation
- 16 = Going upstairs
- 8 = Mannerism in reading
- 2 = Age at onset of blindness

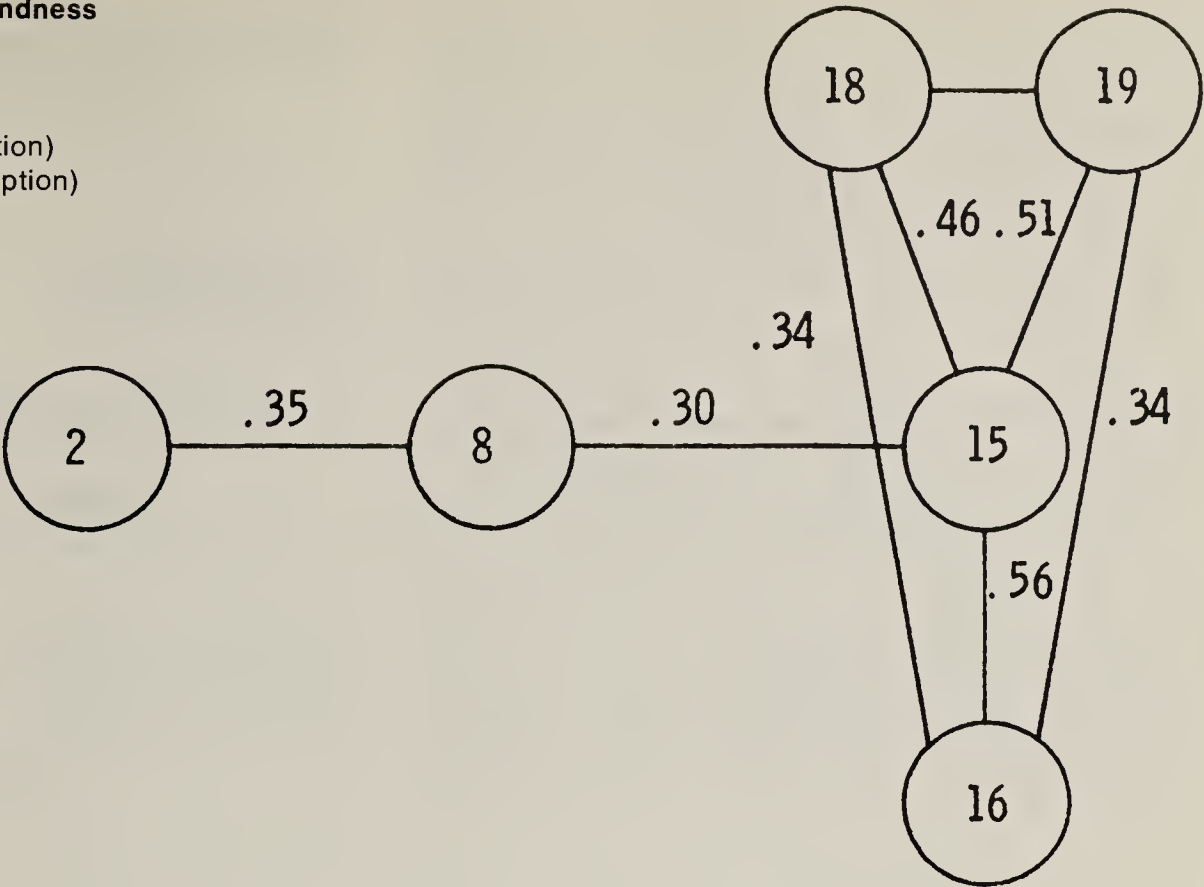
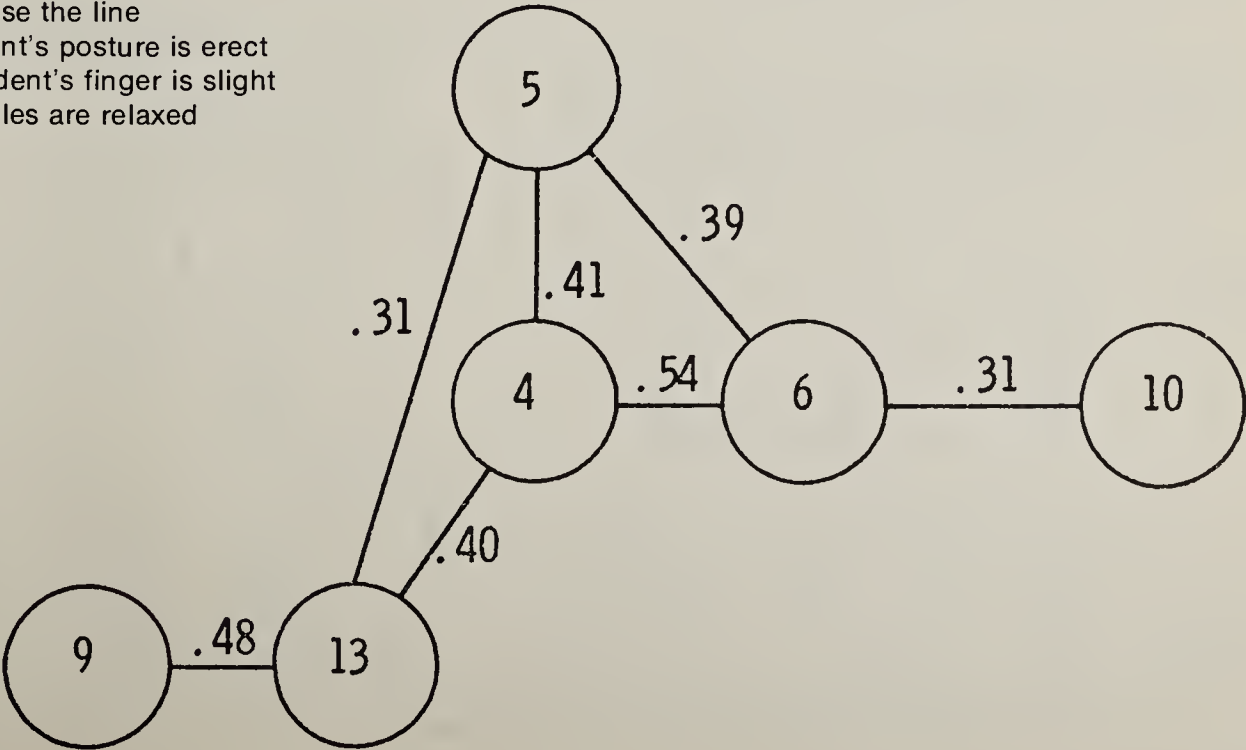


Figure 3. Cluster II: The reading hands

Phi coefficients  $\geq .30$

- 4 = Movement of the fingers in an even flow
- 5 = The student does not "rub" letters
- 6 = The student does not lose the line
- 10 = When reading the student's posture is erect
- 13 = The pressure of the student's finger is slight
- 9 = When reading the muscles are relaxed





achievement. This clearly confirms the conviction of teachers that even flow of hand movement, amount of finger pressure, and tension of the muscles are all important in learning to read braille. In Lowenfeld's investigation (1969) the importance of these variables was less clearly demonstrated, probably because the variables were separately correlated with reading achievement.

6. There is a clear connection between verbal IQ, measured with the verbal section of the WISC, and reading achievement.

7. The relationship between haptic perception and reading achievement is less than that between verbal IQ and reading. Skill in haptic form discrimination and haptic figure orientation are more closely related to reading achievement than haptic size and roughness discrimination skills.

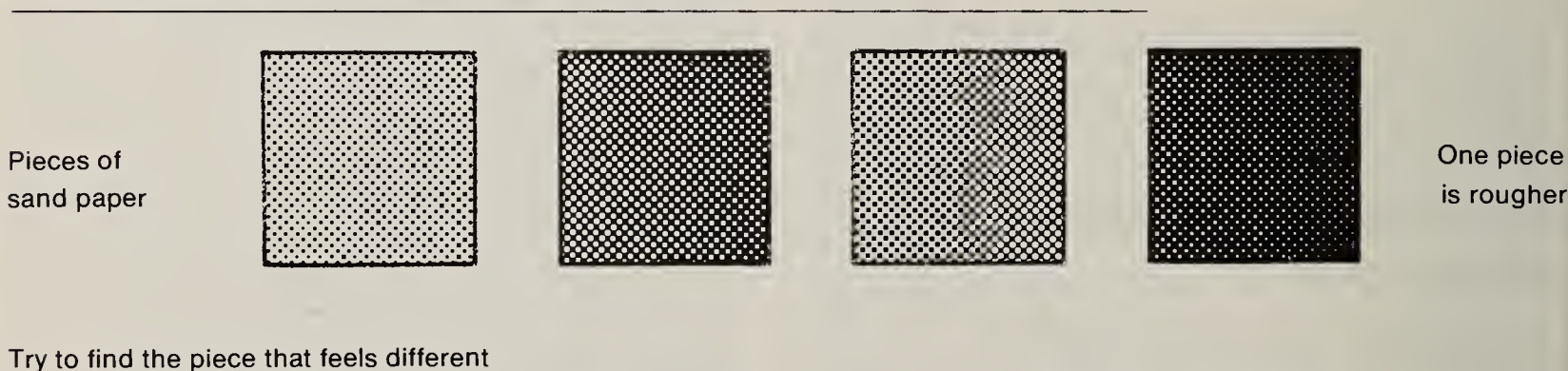
8. From the correlations found, it can be concluded that there is an interaction between the amount of braille education, the development of verbal intelligence, and the development of haptic perception.

Finally it must be noted that this investigation is only an overall approach to a limited number of factors that influence braille reading. It is desirable for similar investigations to be carried out on larger groups that have smaller age variations. ■

**Table 4. Pearson Correlations Between Two Cluster Scores and Reading Achievement**

WORD RECOGNITION SKILLS		
90<N<101	Cluster I	Cluster II
Speed test: words	.10	.55
Speed test: sentences	.14	.54
Power test: words	.08	.47
Cluster I: Degree of blindness Cluster II: The reading hands		
READING COMPREHENSION		
	Cluster I	Cluster II
Grade level III) N = 27)	.03	.61
Grade level IV (N = 33)	.09	.39
Grade level VI (N = 24)	-.26	.66

**Figure 4. Roughness Discrimination Test**



**Figure 5. Form Discrimination Test**

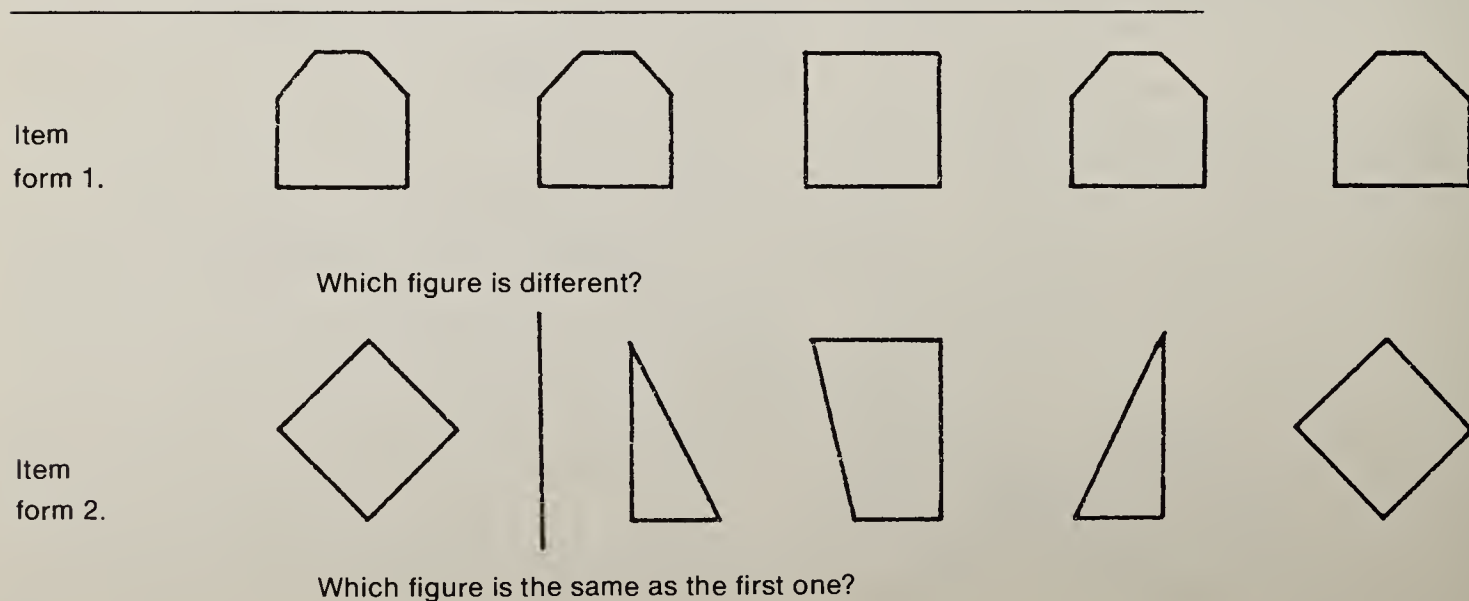
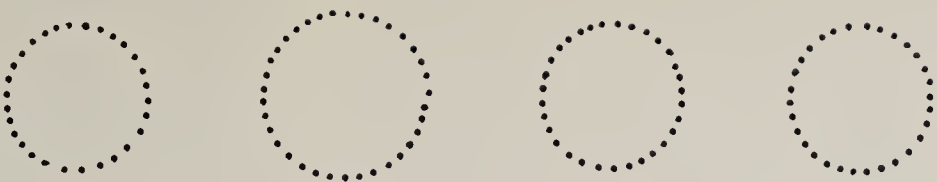


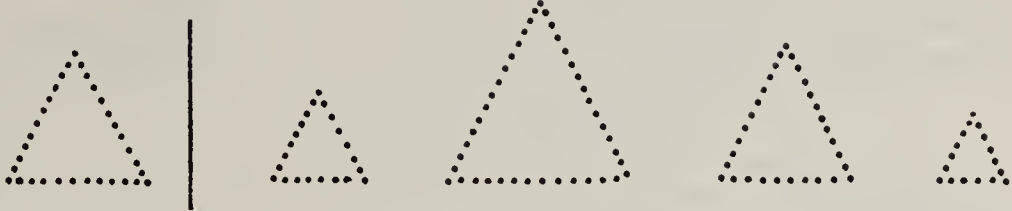
Figure 6. Size Discrimination Test

Item form 1.



Which figure is different?


Item form 2.



Which figure is the same as the first one?


Figure 7. Figure Orientation Test

Item form 1.



Which figure is different?

Item form 2.



Which figure is the same as the first one?

Table 5. Partial - Correlation Coefficients Between the Verbal Subtests of the WISC, Some Haptic Tests, and Reading Achievement. (Age held constant.)

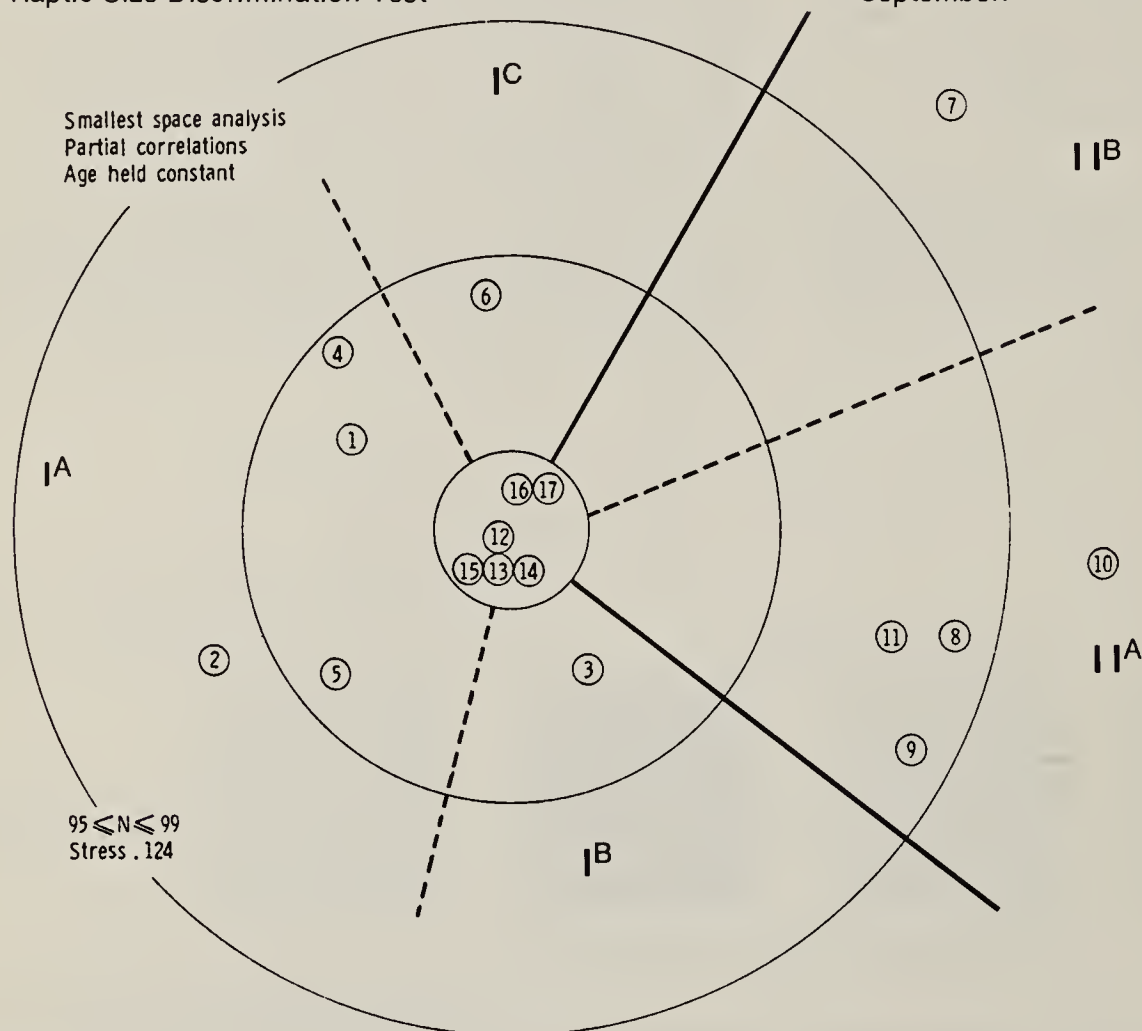
95≤N≤99	READING SPEED: single words	READING SPEED: single sentences	READING POWER: single words
WISC			
Information	.60	.57	.66
Comprehension	.57	.49	.46
Arithmetic	.57	.61	.65
Similarities	.47	.44	.60
Vocabulary	.56	.54	.58
Digits	.60	.59	.66
HAPTIC			
Roughness Discrimination	.24	.20	.30
Form Discrimination	.43	.42	.48
Object Discrimination	.51	.49	.43
Size Discrimination	.30	.26	.40
Figure Orientation	.49	.47	.50



**Figure 8. Smallest space analysis**

1. Information – WISC
2. Comprehension – WISC
3. Arithmetic – WISC
4. Similarities – WISC
5. Vocabulary – WISC
6. Digit Span – WISC
7. Roughness Discrimination Test. (Nolan)
8. Tactile Kinesthetic Form Discrimination Test (Crandell and Hammill)
9. Haptic Object Discrimination Test
10. Haptic Size Discrimination Test

11. Haptic Figure Orientation Test
12. S.B.W. – Speed test: separate words – data collected in March
13. S.B.W. – Speed test: separate words – data collected in September
14. B.Z.L. – Speed test: separate sentences – Form I, data collected in June
15. B.Z.L. – Speed test: separate sentences – Form II, data collected in June
16. M.L.B. – Power test: separate words – data collected in March
17. M.L.B. – Power test: separate words – data collected in September.



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# Faster Braille Reading: Preparation at the Reading Readiness Level

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Teachers of visually impaired persons have long battled with the relative inefficiency of braille reading. Lowenfeld (1973) has indicated that braille readers lag progressively farther and farther behind their print reading peers (in terms of reading rate) as they pass through school. A recent study by the author (1975) revealed a negative correlation between age and rate increases made by braille readers after training in rapid reading. It seems important, therefore, to implement techniques for improving reading rate as early as possible in the teaching of braille reading.

This article suggests several activities at the reading readiness level which should later enhance the efficiency of braille reading. These activities might be carried out by a vision teacher in a residential, a resource, or an itinerant program. In an integrated setting, the regular classroom teacher might also implement several of these activities with the assistance of a vision consultant.

The readiness activities set forth in this article do not represent an exhaustive treatment of what can be done at this level. It is hoped that they will call attention to the specific skills related to reading efficiency. Individual teachers should use the ideas presented here as "springboards" to designing their own activities.

**READINESS LEVEL SKILLS** There are basically six skills at the reading readiness level directly related to reading rate. Initially, one would want the child to develop good *tactual discrimination*. It is important that *finger dexterity* is developed simultaneously. Once the child is learning to combine these two skills, he should be practicing rapid, coordinated *hand and finger movements*. At this stage, he needs to refine his tactual skills and to develop *light finger touch*. The final skills belonging to the readiness level involve experimentation with *book positions* and learning efficient *page turning*. Each of these skills will be analyzed individually and activities will be suggested for dealing with each one.

## **Tactual Discrimination**

The teacher should begin with large three-dimensional objects that are grossly different from one another (blocks, balls, toys). The child can be asked to sort these into pairs. To reinforce basic concepts, this activity might involve finding objects of the same shape but different in size.

The American Printing House puts out a "Touch and Tell" reading readiness series that could be used at this time to introduce tactual discrimination of two-dimensional figures (e.g., line drawings, thermoformed replicas). Another option is for the teacher to make her own materials. A deck of playing cards can be used to make a game of "Touch Old Maid." Pieces of fabric are glued to the cards in matching pairs. The pairs that are grossly different should be introduced initially (e.g., rabbit fur, silk, corduroy, velvet). The deck may be utilized as an individual sorting task or used by a group of youngsters applying the card rules for the regular game of Old Maid. The only unpaired card would be the old maid, which might consist of the braille symbols for those words. As children become proficient at identifying fabrics that differ little in texture (i.e. two widths of corduroy, two kinds of polyester), additional decks might be made. Pieces of felt, different only in shape or size might be glued to cards. A sewing tracing wheel could also be used to make lines of varying lengths on these cards. The final step in developing tactual discrimination would be to introduce a deck of cards with braille characters. Again, one would start

**Abstract:** Research on braille readers has shown that they lag increasingly farther behind print readers in terms of reading rate as they progress through school. Since the younger a reader is, the more he benefits from training in rapid reading techniques, training should begin as soon as possible. This article describes six skills related to more efficient braille reading that should be considered for use as early as the reading readiness level. Specific activities are suggested for developing each of these skills.



by introducing the braille characters that differ the most from one another tactually (e.g., full cell, dot 1, dots 1 and 3). This game can be modified to teach all the braille characters once the regular reading program is begun.

**FINGER DEXTERITY** A good starting point might be to encourage fine finger manipulations along with various categorizing tasks being used throughout the general readiness program. This might include putting beads or blocks into boxes. The teacher should attempt to introduce smaller and smaller objects to manipulate (paper clips, small nails). Bead stringing is another task which will serve to increase finger dexterity. The child could also be given a pegboard in which the teacher has made a pattern; the child is instructed to copy the teacher's pattern. Still another activity is to have the child put pinch clothespins on a hanger. He might do this as a counting activity or again as a copying task.

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**“At the readiness level, hand movements are applied to ‘simulated reading material.’ For example, children may practice following the edge of a ruler or book to see how the fingers travel when following a line of braille.”**

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Several years ago the cuberithm board was a popular calculating device for the blind. Though the braille writer and abacus have somewhat replaced this device, it has an excellent function at the reading readiness level. The teacher might give instructions to the child on tape for placing the cubes on the board. One instruction, for example, might be, “Fill all the spaces on the left”; another might be, “Start at the top of the board, pick a row and fill in every other space with a cube until you reach the bottom of the board.” This activity not only provides practice in finger dexterity, but also tests basic verbal concepts (left-right, top-bottom). It may be used as a reinforcement for counting skills as well. By taping instructions, the child can work independently and be checked only periodically. Two children might do this task together and check to see if their boards feel alike.

In order to develop dexterity in the fingers of both hands, the child should be encouraged to try all the foregoing activities with each hand in turn and both hands together.

### **Hand and Finger Movements**

From the beginning of this phase, the teacher needs to stress the use of both hands and all four fingers on each hand. Eventually children should develop their own styles of hand movement and may favor certain fingers on each hand. Nonetheless, teachers can explain to children that some are “lead fingers” and others “detectives” or “assistants.” The assistants can take over for the lead fingers when there is injury or soreness. Using both hands enables them to act together at times (one picking up what the other has missed) and separately at other times (skimming two different pages simultaneously). When two hands are employed, one hand can continue the reading while the other turns pages or shifts the position of the book.

At the readiness level, hand movements are applied to “simulated reading material.” For example, children may practice following the edge of a ruler or book to see how the fingers travel when following a line of braille. In this practice situation, some fingers are curved more than others; this will be true in the actual reading situation as well.

At this point a number of teacher-made materials will come in handy. Strings of yarn may be glued to sheets of braille paper and placed in straight lines of varied lengths as well as in curving and swirling lines. The child is told to pass both hands (using all eight fingers) over the yarn lines without “falling off the line” and to stop when the line stops. Eventually the yarn should attempt to simulate lines of braille reading material in two respects. First, practice should be given with lines initially farther apart (more than an inch) and finally with lines spaced the same distance as single-spaced braille in literary books. Secondly, paragraphing should be illustrated by the yarn lines being periodically indented horizontally and spaced vertically.

Other materials that can provide the same kind of practice would be stick books (popsicle sticks glued in straight lines of varying length), tracing wheel lines on paper, or thread lines made on paper by a sewing machine. A culminating activity for perfecting this skill might be brailleing lines of full braille cells, lines of 1's or lines of single dots in the braille cell.

All of these exercises will give the child a chance to experiment with varied hand movements, to practice rapid and coordinated hand movement, and to learn rapid “searching” with all eight fingers.

**LIGHT FINGER TOUCH** The teacher should verbally reinforce the child for applying less pressure on his fingertips as he examines materials tactually. Demonstrating on the yarn, stick or thread books, the teacher can hold the child's hands in such a way as to give him the “feel” of lightly touching a surface.

Once braille cells are used for practicing tactual discrimination or hand and finger movements, the teacher can give a child extra incentive for practicing light finger touch. By rubbing the child's fingers with colored chalk, his progress in using less pressure can be measured. The lighter the fingers are touched to the page, the longer the chalk will stay on the fingers and the more braille characters will be covered by the rubbed-off chalk. Though the child will not be able to see the results for himself the teacher can give him verbal feedback. The child may even want to chart how many lines he can cover in a minute and how many of those lines are colored by chalk.

A braille tachistoscope would be ideal for practicing rapid, light finger movement, although a rough replica can be made by the teacher more cheaply. Braille cells are put on strips of braille paper and pulled beneath the child's fingers. It will help if the child places his hands on a book with his fingers curved over the edge for this activity. The child should be able to discern when the braille character used changes to a different one, or when one line of cells ends and another line begins.

### **Page Turning**

In the beginning, page turning should be practiced on heavy cardboard pages. Linen books are probably the next easiest to manipulate. The yarn, stick and thread books, if they are made on braille paper, might provide another set of practice materials. The child should practice finishing the



last line on a page with the left hand while turning the page with his right hand.

Old braille magazines and books will aid the child in picking up speed and skill in turning pages without worry of tearing the pages of good books.

Starting during the reading readiness phase and continuing into the primary readers, the child should be allowed to experiment with comfortable book positions. These positions might include placing the book on tables of varying heights, using book props at the bottom or top of a book, laying the book on the lap, and slanting the book at various angles. Teacher and child should determine together which

book position seems best. Using the simulated reading material, the position which allows for the most rapid rate in combination with the five skills previously discussed should be the one employed. ■

## References

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- Olson, M. The effects of rapid reading training on the reading rates and comprehension of braille and large print readers. Unpublished doctoral dissertation, University of North Dakota, 1975.

## Night Viewing Pocketscope

A pocket size night vision aid for retinitis pigmentosa patients, called the Pocketscope, has been developed by the International Telephone and Telegraph Corporation (ITT).

The project was based on studies conducted by Dr. Eliot L. Berson and associates at Harvard Medical School and the Massachusetts Eye & Ear Infirmary. That study employed a military type viewing monocular. Because of the high production cost and difficult operation of this device, ITT undertook to develop a lower cost, smaller version.

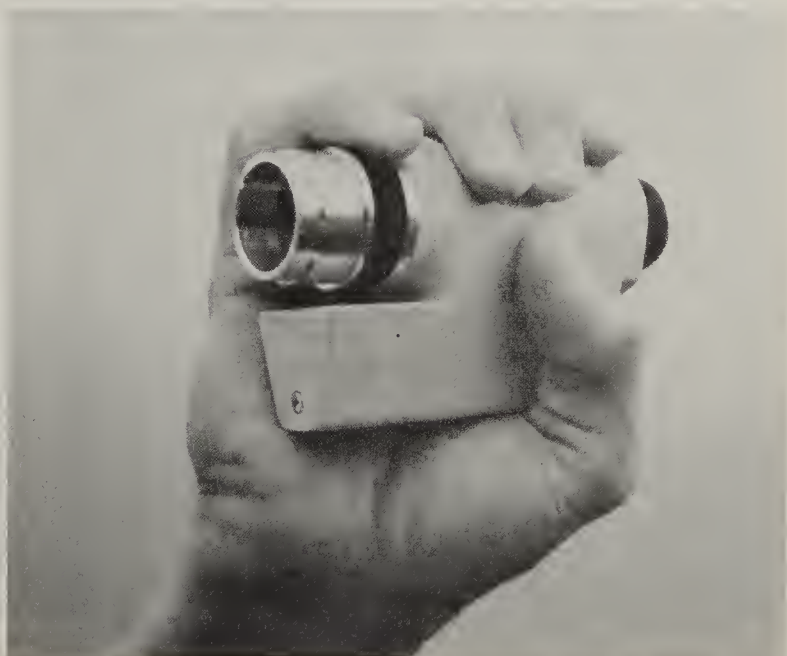
The Pocketscope amplifies an electronic signal generated by light focussed upon a photocathode. This function is analogous to that of the receptors in the retina of the eye. The amplification of the electronic signal (image) takes place within a component called a microchannel plate, which is a specially treated glass disk containing approximately 1 million micron diameter channels. The optical gain is 300-800, with unity magnification and 40 degree field of view.

The process of electron multiplication which occurs in these channels is similar to the functions of the optic nerve. The amplified electronic image is then converted back to light by a phosphor screen, very like that on the face of a television picture tube. The amplified light image, which is inverted, as in a camera, is then re-inverted by a fiber optic device and focussed in the observer's eye.

In patients with retinitis pigmentosa, the receptors which enable persons to see in very dim light have been damaged by the disease, but in a majority of cases, useful daytime vision still exists. The Night Vision Pocketscope produces an image of sufficient brightness to activate the undamaged daytime receptors (cones). Thus, a person who has retinitis pigmentosa is able to see at night or in a dimly-lighted area with his daytime vision. The Pocketscope, in further analogy to the eye is designed to compensate for sudden and high levels of brightness and thus protects both itself and the user's eye.

The total weight of the system is 12 ounces and it is miniaturized to about the size of an instamatic camera. It may be carried in a pocket or purse, or on a neck strap.

For further information contact Night Vision Aid Distributors, Inc., P.O. Box 207, Randallstown, Maryland 21133.





# National Exhibit of Art by the Blind

The Philadelphia Library for the Blind and Physically Handicapped and the Nevel Gallery of the University of Pennsylvania Museum hosted a national exhibit of work by blind artists from June 23 to September 30, 1976. The 73 entries, which included sculpture, etchings, and paintings, were created by visually handicapped artists from all across the country.

The principal organizer of the exhibit was Michael P. Coyle, director of the Library for the Blind and Physically Handicapped. "Art by the blind," Mr. Coyle stated, "has too long been regarded solely as a therapeutic medium. In fact, the blind artist is creating work which is in every way comparable as fine art to the work produced by the sighted artist."

The entries were judged by a panel of art experts, including David Crownover, University of Pennsylvania Museum; David Katzive, Philadelphia Museum of Art; Yasha Lisenco, Jewish Guild for the Blind, New York; and Raphael Sabatini, Philadelphia Art Alliance. The Grand Prize of \$500 was awarded to Steve Handschu of Detroit, Michigan, for his wood sculpture, "Forest Birth." The second and third prizes, \$300 each, were received respectively by Temitch Estavanico Mitchell, Rosemont, Pennsylvania and Gladys Barry, Lansdowne, Pennsylvania. The first six prize winners are shown here.



Grand Prize Winner—"Forest Birth" by Steve Handschu



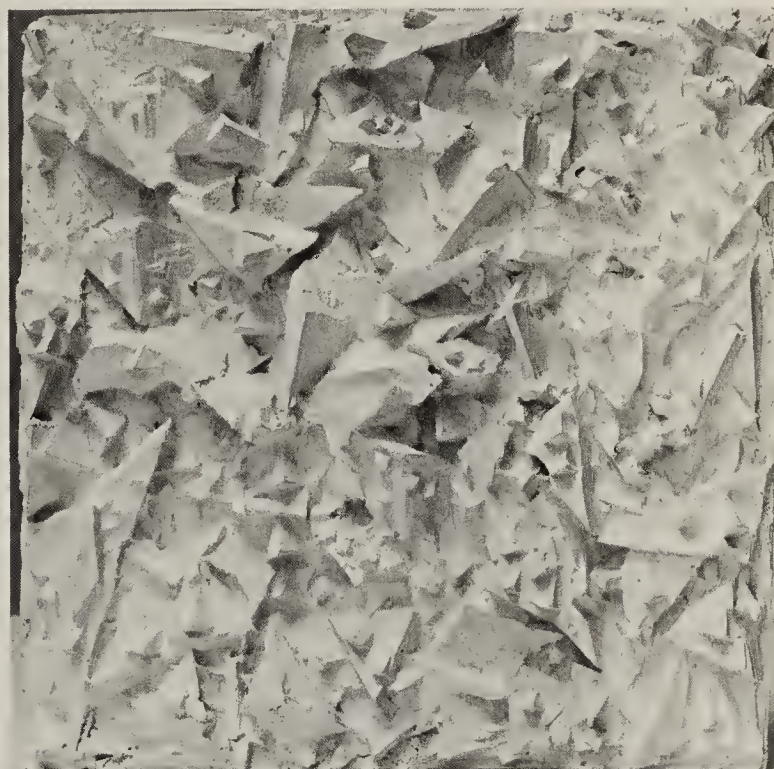
"Rhapsody" by Temitch Estavanico Mitchell—Second Prize





**"Bread Line U.S.A.-1933" by Gladys Barry—Third Prize**

**"Torso" by Frieda Enteen—Fourth Prize**



**"Geometrical Configuration" by Daniel Tang—Fifth Prize**

**"Solo" by Norman Coombs—Sixth Prize**





# Functional Vision Screening for Severely Handicapped Children

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**Abstract:** *Ophthalmologists traditionally have been unable to provide teachers and parents with useful information about a severely handicapped child's functional vision. Literature concerning the assessment of vision in handicapped children is reviewed and a guide is proposed for use by teachers in evaluating the severely handicapped child's functional vision.*

Severely handicapped children with some form of visual impairment are often placed in educational settings accompanied by inadequate reports giving some indication of visual classification and an unintelligible description of the specific impairment. References are repeatedly made to the difficulties involved in assessing the child's visual problems and to the hesitancy with which the ophthalmologist makes his judgment. In centers where a multidisciplinary team evaluates the child, vision experts tend to rely on the functional visual information provided by the classroom teacher or the educational diagnostician. A more practical assessment of visual functioning in severely handicapped children will therefore become available if those agents most familiar with the child's everyday use of vision actually participate in the assessment.

This paper describes some of the difficulties found in testing the visual acuity of severely handicapped children, surveys formal and informal measures used in testing visual acuity or functional vision, suggests guidelines for teachers to use in observing visual behaviors, and proposes a functional vision checklist that may be used by teachers or paraprofessionals to gain insight into how a child is using his residual vision.

**FORMAL ASSESSMENT OF VISUAL ACUITY** The problems inherent in determining visual acuity of multiply handicapped children have been stated by Allen (1957), Wolfe and Harvey (1959), Hoyt (1963), Sloan and Savitz (1963), Ffooks (1965), Borg and Sundmark (1967), Faye (1968), Lippman (1969), Macht (1971), and Sheridan (1973). Under the conditions imposed by the instruments used for testing visual acuity, low functioning children are easily distracted, lose interest in the test, fear the testing situation, fail to understand the tests, and give unreliable and inconsistent responses. Special educators and ophthalmologists have tried to find visual acuity tests that are effective with severely handicapped children, since visual impairment is frequently found with other handicapping conditions. Blackhurst and Radke (1968) found that moderately retarded children had four times as many visual impairments as the normal school population; Vernon (1969) reported that approximately 25 percent of deaf children had some form of visual impairment, and Wolf and Anderson (1973) provided evidence of visual limitations in 50 percent of cerebral palsied children.

## What is Visual Acuity?

Wolfe and Harvey (1959) defined visual acuity as the ability to distinguish small spatial separations, or intervals, between portions of the visual field. Since it depends upon the ability of the eye to resolve a given visual angle, acuity is greater the closer together are two points that can be distinguished. Wolfe and Harvey distinguished sensory from visual acuity as an individual's reaction to low-keyed sensory data of mild duration and extent. Lippman (1969) suggested that sensory impressions developmentally advance from discriminative and perceptual stages to a conceptual stage.

Sheridan (1970) segmented acuity into two separate processes which are particularly relevant to multiply handicapped children: *seeing* and *looking*. Described as a physiological process dependent upon intact visual mechanisms, *seeing* is "the reception of mobile and static patterns of light, shade, and hue by the eye and transmission of this information to the central nervous system" (Sheridan, 1973). Primarily a psychological process, *looking* combines perceptual



and conceptual operations to attend to visual stimuli with purposeful interpretation of their meaning.

As the child's awareness of his world increases so does his ability to distinguish visually and to respond to more abstract forms of stimuli through gradual refinement of his acuity to its mature state. Sheridan (1973) believes that by 12 months a child has a visual acuity comparable to adult vision, although it is not efficiently developed. A child of kindergarten age should be able to attend to an object for at least 20 seconds, pursue a moving target in all directions with a minimum of head movement, and localize different visual stimuli within the environment (Banus, 1971).

The majority of multiply handicapped children with significant visual deficiencies retain some functional vision and do see. However, their limited experiential and cognitive repertoires—essential to the integration of sensation into meaningful stimuli—prevent them from looking.

**FORMAL TESTS AND PROCEDURES** The formal tests that offer the most promising information about the extent of visual functioning of multiply handicapped children are Sheridan's Stycar Vision Tests and Koehler's New York Flashcard Vision Test (Faye, 1968). These tests were developed specifically for use with handicapped children and to assess near as well as distant vision.

Lippman (1969) found the Stycar to be the most reliable test in screening visual acuity of preschool children. Although Sheridan devised a distant screening chart consisting of only nine capital block letters chosen on the basis of simple vertical and horizontal lines (L H T), the circle (O), the cross (X), the part-square (U), the triangle (A), and the part-triangle (V), her Miniature Toys Test and Rolling Balls Test (subtests in the Stycar battery) are in fact more useful for evaluating vision in multiply handicapped children.

The Miniature Toys Test was developed for use with severely handicapped children who were unable either to match letters or name and match colored pictures of common objects placed individually on cards. After experimenting with numerous toys, Sheridan found the most effective ones to be a car, plane, doll, chair, knife, fork, and spoon, all 2" high; a larger knife and spoon 3¼" high; and a doll 5" high. She found that children as young as 21 months successfully matched the objects and that their interest in the task lasted for its duration.

Designed particularly for use with children from six to 30 months, the Rolling Balls Test consists of a series of graded balls projected a distance of 20 feet. The child is required to retrieve them one by one after they have been rolled horizontally across his line of vision.

The New York Flashcard Vision Test was developed out of a need for assessing the visual acuity of multiply handicapped children, visually handicapped preschool children, and the nonreader of any age (Faye, 1968). Only three symbols (heart, house, and umbrella) make up the test. They are presented one at a time on 12 reversible 4" x 5" flashcards. Snellen acuity notation is printed on every card, three symbols for each acuity level from "200" characters to "10." As long as they are consistent, children may verbally or manually label symbols anything they like or, if unable to express themselves, can point to large matching symbols. Average children of 27 months consistently attended and responded appropriately to the three symbols, and Faye successfully screened trainable mentally retarded children with the cards. The test is administered to the conventional method of acuity testing, except that the test distance is ten

feet or less and notations can be converted to the 20-foot reading.

### Unsuitable Tests

Other formal measures of visual acuity have required skills not in the repertoire of multiply handicapped children. Sloan and Savitz (1963) identified two major forms of visual acuity tests, those based on indicating directions and those requiring identification of pictures.

In reviewing tests based on indicating directions, Sheridan (1973) felt that the Snellen E, the Sjorgen-Hand Test, and Landolt's Broken Rings included three major factors that significantly influenced the low functioning child's ability to perform adequately on them. Because multiply handicapped, as well as preschool children, have difficulty in coping with diagonals, they responded only to figures pointing up, down, left, or right. Directionality also complicates the assessment of multiply handicapped children as they confuse left and right and, although they may perceive laterality, they experience confusion in duplicating the position of the symbols. Because the patterns presented are constant, no opportunity is available to observe the child's ability to discriminate differences in configuration (Sheridan, 1973 and Ffooks, 1965).

Picture identification tests have been most frequently employed in testing handicapped populations though numerous adapted procedures have been necessary. Osterberg (1965) specified three requirements to bear in mind in the selection and development of pictorial visual acuity charts: 1) optometric principles must be adhered to as closely as possible; 2) objects must belong to the child's world of ideas; and 3) presentations of pictures must be adapted to the child's demands for recognition of pictures greatly variant from adults' needs. Other authors (Allen, 1957; Wolfe & Harvey, 1959; Hoyt, 1963; Faye, 1968; and Sheridan, 1973) have stressed the importance of using pictures of objects within the child's experiential repertoire. General criticisms of picture charts were that the pictures inaccurately projected angles at a nodal point corresponding to the highly accepted Snellen E symbol and required personal experience and ability to recall labels. More specific concerns have been expressed by Sloan and Savitz (1963), Borg and Sundmark (1967), and Ffooks (1965). Sloan and Savitz (1963) and Ffooks (1965) stated that picture tests were too dependent on psychological interpretations of figures before they could be understood and recognized by children.

**INFORMAL TESTING** Adaptations of formal tests have included deleting items; projecting them onto large screens; manipulating three dimensional response materials; converting response forms into puzzles; altering the type of figure, outline, silhouette, background, or color of the target and response figure; and applying operant technology (Courtney & Heath, 1971 and Macht, 1971). Although numerous tests have been developed and adapted with handicapped children in mind, none have proved satisfactory for use with this population unless administered through some form of operant procedure.

Employing an operant approach, Courtney and Heath (1971) trained and evaluated color vision in 39 trainable and 71 educable mentally retarded children using the AO HRR Color Vision Tester to determine the percentage of color blindness among the population of mentally retarded individuals. They found the AO HRR effective, as it offered four



training and six testing plates graded for both type and severity of color blindness. The test proved to be highly motivating, required no verbal responses, no ability to read conventional numbers, and no need for the coordination essential for tracing paths. Training the children to take the color form of the test was accomplished through a black and white adaptation of the colored symbols O, X, and  $\Delta$ . Identical forms were painted on slabs hinged to a box which dispensed M & M's whenever a correct response was given. Most children required about five minutes of training, but the authors succeeded in testing one 12-year-old Mongoloid child with an IQ of 35 after 40 minutes of training. No difference was found in the prevalence of color blindness among mentally retarded individuals and that of normal individuals reported in the literature.

Macht (1971) applied operant technology to obtain a subjective measure of visual acuity in five mentally retarded children between five and seven years of age. He included in his subject population two adults of normal intellectual and visual functioning to verify his results. Through the use of a specially constructed wheel displaying two stimulus Snellen Illiterate E's, one at the top and the other at the bottom of the wheel, and a table containing a response mechanism, Macht not only devised a way to evoke responses to the Snellen Illiterate E Chart, but also included an elaborate training system. The children were placed at the table 20 feet from the wheel and were trained to respond by pushing the response lever to the upright E, as opposed to the E which inverted as the wheel turned. Subjects were reinforced with M & M's and small candies for appropriate responses. The initial training E was larger than the 20/200, but for the actual testing the 20/200, 20/100, 20/70, 20/50, 20/40, 20/30, and 20/20 E's were utilized. Obtaining significant successful results that correlated with the adults' responses, Macht attributed children's previous failures to respond to the Snellen E and other visual acuity tests to procedural inadequacies rather than to the presence or absence of some quality in the child himself.

Macht and Courtney, with their promising results, offered the field of visual assessment valuable implications for successful application of tests that had previously proved ineffective with multiply handicapped children. Teachers cognizant of how children functionally use their vision can give ophthalmologists information that is helpful in determining visual capacities. Assessing functional vision in the severely handicapped child is a first step in planning educational programs relevant to his needs.

### Informal Teacher-Oriented Visual Screening

Informal teacher-oriented visual screening procedures can effectively obtain important, practical information regarding what a child sees and how well he sees it. Although informal, the evaluation should be carried out systematically. Establishing a working rapport with the child, the setting, and stimulus materials is of primary importance. With a particularly young child, it may be necessary to hold and rock or sing to him for several minutes to quiet him. Sharing a manipulative toy often helps the evaluator to gain the confidence of an older child. The setting should be small, uncluttered, and quiet. Working with the child on the floor, where the evaluator has easy access to both the child and materials, facilitates administration of stimulus materials, puts the child and evaluator on the same level, and prevents attempts to leave a table, slip from a chair, or push materials from the table. Multiply handicapped children are more

responsive to highly motivating materials, although in this assessment they must be limited in sound components to insure that the child is attending visually rather than aurally.

Suggested materials for eliciting visual behaviors outlined in the checklist are brightly colored soft rubber squeak toys with the squeaker removed (this toy can be squeezed to produce action but the sound is eliminated), a penlight or small flashlight, fluorescent rubber toys containing lights, and mechanical toys having flints producing sparks when operated. Especially motivating for severely handicapped children are rattles encasing moving parts; large and small spinning tops and easily rolled cars; fluorescently colored inch cubed blocks; small candies or cereals such as M & M's, Fruit Loops, cake decorating items; and roly poly action toys. Other suggested materials are a small box, paper and brightly colored magic markers; plastic pegs and board; brightly colored, textured books with thick pages; large beads; stacking cones; a primary puzzle with approximately three pieces; multicolored counting bears; shape sorting chips or parquetry blocks; simple pictures in duplicate glued to small index cards; or commercially produced pictures and duplicates of different colored toys for matching.

The first stage of the visual assessment should be to observe the child for immediately obvious visual abnormalities and behaviors indicating deficient vision. Primary questions to be answered should focus on the presence or absence of basic visual responses, and the types of visual stimuli (light, movement, color) to which the child attends. Observing not only the manner and direction in which the child reacts to visual stimuli, but also the distance and size of objects eliciting the most consistent response, provides insight into the positioning of specific materials useful in obtaining maximum visual attention. Equally important is the assessment of the child's ability to integrate visual stimuli with cognitive and motor processing skills to perform discrimination, association, figure-ground, and eye-hand coordination activities. Simple techniques for use in assessing five aspects of visual function are given below. Figures I through V suggest check lists a teacher may use for recording information about a multiply handicapped child's performance.

## Techniques for Functional Vision Screening

### I. Presence and Nature of the Visual Response

a. Direct a penlight into the child's eyes from 12" away and observe whether the pupils constrict, then dilate when the light is removed. Be sure to observe his eyes before shining the light as blind children often exhibit hippus, a continual constricting and dilating of the pupil.

b. Assessing a tendency of the eyes to deviate can be done by flashing a beam from a penlight into the child's eyes from 30" away. If the light is reflected simultaneously in the middle of each pupil, no deviation is present. If the reflection is centered on one pupil but off-center in the other, some form of muscle imbalance is indicated.

c. Place the child on his back and kneel behind his head. Pass your hand across his eyes, pause and repeat. A blinking reflex indicates some light perception and possibly some object perception.



## I. Presence and Nature of the Visual Response

- a. Pupillary reaction:    \_\_\_present \_\_\_absent \_\_\_R \_\_\_L
- b. Muscle imbalance:    \_\_\_present \_\_\_absent \_\_\_R \_\_\_L
- c. Blink reflex:         \_\_\_present \_\_\_absent \_\_\_R \_\_\_L
- d. Visual field loss:     \_\_\_present \_\_\_absent \_\_\_R \_\_\_L
- e. Peripheral field loss: \_\_\_present \_\_\_absent \_\_\_R \_\_\_L
- f. Visual field preference: \_\_\_present \_\_\_absent \_\_\_R \_\_\_L
- g. Eye preference:       \_\_\_present \_\_\_absent \_\_\_R \_\_\_L

## II. Reaction to Visual Stimuli

- a. Inappropriate visual behaviors:    \_\_\_present \_\_\_absent
- b. Tracking ability:                   \_\_\_present \_\_\_absent  
   \_\_\_light \_\_\_objects: \_\_\_vertical \_\_\_circular  
   \_\_\_horizontal \_\_\_oblique
- c. Reaches for toys:                   \_\_\_present \_\_\_absent  
   \_\_\_in front of him \_\_\_to his right \_\_\_to his left  
   \_\_\_above eye level \_\_\_below eye level
- d. Shifts attention:                   \_\_\_present \_\_\_absent  
   \_\_\_both sides \_\_\_one side \_\_\_R \_\_\_L
- e. Scanning ability:                   \_\_\_present \_\_\_absent

## III. Distance and Size of Objects and Pictures

- a. Locates dropped toy:    \_\_\_present \_\_\_absent \_\_\_distance  
   \_\_\_peg or candy \_\_\_inch cubed blocks \_\_\_shape chips
- b. Small toy observed:    \_\_\_present \_\_\_absent \_\_\_distance
- c. Large toy observed:    \_\_\_present \_\_\_absent \_\_\_distance
- d. Objects matched:       \_\_\_present \_\_\_absent \_\_\_distance  
   \_\_\_large toys \_\_\_distance  
   \_\_\_small toys \_\_\_distance

## IV. Integration of Visual and Cognitive Processing

- a. Visual pursuit:                   \_\_\_present \_\_\_absent
- b. Causality:                       \_\_\_present \_\_\_absent
- c. Object permanence:               \_\_\_present \_\_\_absent
- d. Object concept:                  \_\_\_present \_\_\_absent
- e. Means-ends:                      \_\_\_present \_\_\_absent

## V. Integration of Visual and Motor Processing

- a. Approach:
  - 1. pegs:                   \_\_\_visual \_\_\_tactual Reach: \_\_\_O \_\_\_U
  - 2. stacking cone:       \_\_\_visual \_\_\_tactual Reach: \_\_\_O \_\_\_U
  - 3. puzzles:               \_\_\_visual \_\_\_tactual Reach: \_\_\_O \_\_\_U
  - 4. pounding bench:     \_\_\_visual \_\_\_tactual Reach: \_\_\_O \_\_\_U
  - 5. beads:                \_\_\_visual \_\_\_tactual Reach: \_\_\_O \_\_\_U
- b. Matching:
  - 1. colored blocks:  
   \_\_\_matches \_\_\_does not match \_\_\_near distance \_\_\_far distance
  - 2. shapes:  
   \_\_\_matches \_\_\_does not match \_\_\_near distance \_\_\_far distance
  - 3. pictures:  
   \_\_\_matches \_\_\_does not match \_\_\_near distance \_\_\_far distance

d. Assess the child's perception of light using a penlight. From 12" or closer flash the light and note whether he attends to it. The light should be flashed slightly above, below, to the left, and right of the child's face to determine the range of visual field. Note whether he fails to attend to the light in any plane.

e. Sitting behind the child, bring the light slowly into his right, then his left visual field. Note at which point he turns to look at the light. He should notice it when it is directly in line with the lateral portion of the eye.

f. Present the child with play objects of equal interest simultaneously in the right and left visual fields and gesture for him to touch them, switch their positions and repeat. Observe whether the child attends to a toy in only one position rather than both.

g. While holding a motivating toy 12" to 18" in front of the child's eyes, alternately cover each eye. Observe whether he resists having one or both eyes covered or if he remains indifferent to the covering. Children having limited or no vision in an eye will not mind having that eye covered but will strongly resist covering of the functional eye.

## II. Reaction to Visual Stimuli

a. Observe the child for any inappropriate visual behaviors such as light flicking with fingers or objects or eye poking.

b. Evaluate the child's ability to localize, track, and scan by holding puppets, small squeeze toys, or penlights within the child's range of vision. Move them slowly from left to right, up and down, and in oblique angles. Note whether he locates an object efficiently and attends for at least 20 seconds.

c. Place toys at all levels and in all directions and watch to see if he turns and reaches for them. These items should be interspersed throughout the evaluation to maintain interest in looking.

d. Note whether the child is able to shift his attention by holding two toys of equal interest approximately one foot apart in front of the child. Shake one, pause, then shake the other. Observe whether he shifts his gaze to the other toy.

e. Observe his ability to scan by placing three objects in front of him and watch to see if he shifts his attention from one toy to the next in line.

## III. Distance and Size of Objects and Pictures

a. While interacting with the child, scatter small pegs or candies 1/4" in diameter, inch cubed blocks, counting bears, or shape chips around the child and encourage him to find them. Note the distance at which he most consistently attends to the various sized objects.

b. Project large (6" to 8" in diameter) and small (2" to 3" in diameter) toys to the left, right, and forward from the child and observe how far they travel before he looks away or ceases in his efforts to retrieve them.

c. Using a set of toys that duplicate, except for color, those used in B, have the child match his objects with yours as you display them singly. Begin at 10 feet for large and 5 feet for small objects. Obtain the maximum distance at which the



child sees the objects without straining by moving backwards or forwards in 2-foot intervals until he consistently matches four or five objects.

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#### IV. Integration of Visual and Cognitive Processing

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- a. Tap or pour blocks and pellets from containers in front of the child. Note whether he looks at them as they tumble before him.
- b. Scribble large circular motions with magic marker on white paper in front of the child. Note whether he watches or attempts to take the marker.
- c. Give the child M & M's to hold, help him place them in a small box and shake them around. Take the box from the child and quickly remove the candies. Watch to see if he looks for the candies when you return the box.
- d. Give him a large colorful book to look at. Note whether he bends to look at the pictures or pats them.
- e. Give the child a toy which has continuous action and attracts his attention. As he watches, push the toy out of his sight and note if he looks for the toy. Replace it before him without the motion and observe whether he attempts to reactivate it.

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#### V. Integration of Visual and Motor Processing

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- a. On activities involving the pegs, stacking cone, puzzles, pounding bench, and beads, watch to see if he directly inserts or applies pieces, overreaches (O), or underreaches (U). Does he look for the recess and the hole or does he only tactually approach them?
- b. When shown one colored block, shape, or 2" picture at a time, can he match it, given only two choices? Watch to see which colors, shapes, and pictures he matches and if he attends to color or configuration. Observe the distance from the materials at which he works, then have him match them at a far distance. Note the farthest distance at which he correctly matches each.

#### Summary

Traditional tests of visual functioning and acuity have lacked the impetus essential for assessing children with multiple impairments. Although operant measures have been successful in eliciting behaviors required to respond to these tests, Sheridan and Koehler have offered the most promising formal tests for this population. Until the use of the New York Flashcard Vision Test and the Stycar Vision Test is more widespread, the task of visual assessment remains primarily with the teacher. Obtaining even a gross indication of the child's functional visual field—a preferred eye, distance at which he most efficiently works with various sized objects, and the level of complexity of the visual stimuli that the child successfully interprets—provides the teacher with basic information needed to design an educational program relevant to the child's visual and developmental needs. ■

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# Assertive Training: Its Use in Leisure Counseling

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**Abstract:** *In leisure counseling for the visually limited two objectives are suggested. The visually impaired client should understand and accept the phenomena of leisure and the role it plays in his life. The client should also develop a system of preserving and professing the leisure ethic in a society that may not encourage playful behavior. The study of anti-play messages by means of transactional analysis enables the client to gain an understanding of past "play" experiences and internalized messages regarding play. Assertive training presents a tool which will enable clients to effectively communicate their newly acquired leisure attitudes in such a way that the rights of others are not violated. Information is provided for the professional working with the visually handicapped, regarding experiences and techniques to be used in assertive training. Three basic behavior patterns of communication are defined in terms of leisure behavior. The elements of assertive training are presented so that the unique needs of the visually impaired individual may be met.*

"Recreation counseling is a technique in the rehabilitation process whereby a professional person uses all the information gathered about a client . . . to further explore interest and attitudes with respect to leisure, recreation, and social relationships to enable him to identify, locate and use recreation resources" (O'Morrow, 1970, p. 226). Various recreation therapists have designed strategies to help an individual use his leisure time in a more satisfying manner. Sawyer (1972) suggests that a structured learning experience in the school implemented by the counselor will help the handicapped individual successfully adjust to problems, including use of leisure time, in his or her environment. Mayer (1973) claims that it is not the counselor who should assist the student in a change of leisure attitudes and practices, but rather the parent and teacher. Other models exist, for example, McDowell (1974), McKechnie (1974), Burk (1974), where strategies are presented to attempt to change the client's behavior in regard to leisure.

A well constructed leisure counseling model includes discussion of a variety of topics related to free-time. It is generally accepted that a good model will include 1) background knowledge of leisure activities encompassing recreation needs and interest as they relate to age, education, family, socioeconomic and culture elements; 2) identification of leisure resources available to the client in his home and in the community; 3) establishing a positive and responsible attitude toward leisure; and 4) information and practice on how to contact recreation personnel in the community. After participating in a well-planned leisure counseling program, rehabilitated individuals may leave the agency with the ability to enjoy leisure time. However, they are returned to a work ethic society where they "... may feel guilty about the use of leisure unless it is earned. Such guilt could inhibit the patient and his family from participating in or enjoying leisure activities" (O'Morrow, 1970, p. 226). It is not nearly enough to develop within the client an acceptance of the leisure ethic. Clients also need to develop a system of preserving and professing this ethic in a society that may not encourage leisure behavior.

**EXPLAINING NON-PLAYFUL BEHAVIOR** Scout Gunn (1975) suggests transactional analysis combined with gestalt awareness as a technique to be used in explaining non-playful behavior and attitudes. She states that the "natural child is the most important aspect of the personality in relation to play behavior." However, as a result of demands placed on the child ego state by authority figures, the child adapts and a new ego state emerges: The adapted child. The adapted child is a result of authority figures (critical parents) manipulating the natural child's behavior so that the behavior will coincide with the parents' expectations of appropriate behavior. The messages given by the critical parent frequently include, "Be mature," "Don't be silly," "Don't be loud," "Grow up," "Don't play in the house," "No playing until all the work is done." The adapted child learns to accept that "... there is something wrong with playing" and that "... hard work, responsible and obligatory behavior is the key to success." The adapted child suppresses his need and want of play and spontaneous activity in order to satisfy the demands placed upon him.

The little professor is that part of the ego state which is creative and intuitive. When the little professor is combined with the natural child, what are culturally defined as healthy play behaviors and attitudes are exhibited.

Collier (1973) suggests that we "honor our child" in order



to enjoy and experience leisure. Transactional analysis, as presented by Gunn, is a tool for understanding the internal blocks to honoring our child and participating in playful leisure behavior. The gestalt exercises she presents help the client identify internal messages and analyze the information for himself, discarding any messages he no longer cares to accept as guidelines. Identifying internal messages may help clients understand where they are coming from and help to change their attitudes. Nonetheless, clients need a system in which to express and implement their new attitudes toward pastimes. But, even today, some clients return to a work ethic world that is used to dealing with them as individuals with little interest in leisure.

Joswiak's (1976) model includes a session in which he works with clients to help them to understand the internal conflicts that may arise over the use of leisure. He specifically deals with the parental messages concerning the value of work and explains that it is no longer necessary to listen to or obey these messages. However, he does not include a session dealing with external "parental" (i.e., authority) messages and how not to be intimidated into uncritically accepting these messages in preference to the new leisure attitudes established during counseling.

### Objectives of Assertive Training

The client's gaining an understanding of past experiences and the messages internalized from them is an essential step in attempting leisure behavior change. However, understanding is not enough: the client needs a tool to enable him to assert his new leisure attitude over old anti-play messages and over work-ethic pressures possibly communicated by peers, subordinates, or authority figures in day to day life. Assertive training presents a tool with which clients may, when necessary, effectively communicate their newly acquired leisure attitudes. This tool enables individuals to verbally stand up for their legitimate leisure rights—but always in such a way that the rights of others are not violated.

The specific objectives of assertive training are:

1. To identify for oneself situations in which it is difficult to assert the leisure ethic.
2. To become exposed to different levels and styles of assertive behavior.
3. To develop and practice assertive skills.
4. To learn and practice the appropriate times to use skills.
5. To change the self-concept to include assertive behavior in maintaining leisure activity skills and in living the leisure ethic (Albertie & Emmons, 1975a; Bloom *et al*, 1975).

In communication, three basic behavior patterns occur: non-assertiveness, aggression, and assertiveness. Non-assertive communicators are individuals who generally express their attitudes verbally, but in situations that create anxiety and give negative messages they do not respond in an adequate and desirable manner. These individuals are frequently described as shy or timid and are often unable to assert their leisure rights and wants under many circumstances. They may respond with "no stance" or answers such as, "I don't care what we do tonight," or, "Yes" when they really would like to say, "I want to go bowling" or, "No, I won't be able to work overtime this evening because I've planned to attend the basketball game." These individuals will not do anything to disturb another. They always do what authority figures (parents, boss) and peers request of them, even if they would rather not.

Aggressive individuals wish to stand up for themselves but have not learned responses which are appropriately assertive. For example: "I'm going to do what I want tonight for a change," or, "You've got a lot of nerve asking me to work overtime when I have these tickets for the game." The expressions of the aggressive individual frequently come out in hostile and inappropriate terms, which result in few friends and little esteem.

The assertive individual can directly and appropriately express ideas, needs, and feelings without himself experiencing undue anxiety or creating it in others. For example: "I would enjoy playing tennis this evening, what would you like to do?" or, "I understand that today's work has been slowed down due to the electrical stoppage, however, I do have tickets for the game tonight and will not be able to work overtime." These individuals show a genuine concern for other people's rights and feelings as well as their own.

**LEARNING** Assertive training is based on the theory that **NEW** social behavior is learned. If true, this implies **BEHAVIOR** that it can be unlearned and replaced by new, more rewarding behavior. Non-assertive individuals who reply to a question with, "I don't care" are actually responding from the adapted child portion of their ego, where they were taught to be courteous and to dissimulate in the presence of others. Aggressive individuals who reply to a question with, "We're going to do what I want tonight for a change," are responding from the natural child portion of their ego that responds with angry rebellion when its needs are not being met. Because internal messages and past communications can still influence an individual's behavior, clients should have a general understanding of the three ego states and their messages. By understanding the phenomena of the ego states, clients may, in theory, choose to alter their own behavior.

Assertive training may help clients to shake off self-defeating non-assertive or aggressive ways of communicating in favor of a healthier assertive communication technique while defending their right to leisure. An unexpected outcome of the client's successful implementation of this technique in a leisure situation may be an attempt to experiment with the new technique in other life situations. The successful outcome of this behavior may eventually result in overall change in the client's previously self-destructive communication pattern.

This is not to claim that, by becoming assertive, clients will always obtain what they want. Risks are involved. However, assertive individuals will make their own decisions and assume responsibility for their own actions rather than allow others to choose for them. By implementing assertive training as part of leisure counseling, the therapeutic recreation specialist will help clients to become responsible for their own leisure hours.

### Areas Emphasized in Training

The client's experience in assertive training should include seven areas of emphasis:

1. Background information on assertion, aggression, and non-assertion (Albertie & Emmons, 1975b). The client should have a knowledge of the principles underlying each method of communication as well as an understanding of the "messages," both explicit and implicit, from their parents, authority figures, or peers who try to dictate. They must also understand their relationships with those closest to them



and detect patterns of non-assertive or aggressive behavior which have been in operation for a long period of time. It is important that they accept the possibility that a change in established relationships will probably upset the others involved.

2. A log of progress should be kept by clients recording successful and problematic situations where they found it necessary to communicate their leisure wants and needs. If recorded honestly, this log will be useful in documenting areas of communication that need more practice, in drawing attention to individuals who intimidate the client, and in providing a reminder of successful communication. A log can be an important instrument in assisting the client to become leisure assertive.

3. The clients should record specific behaviors in communicating the leisure needs that they wish to change. This record should be filed by the therapist. Frequent referrals to this record will help to measure whether or not clients are accomplishing the goals they have set for themselves.

4. It is important that clients have the opportunity to role-play assertive behavior. Basic exercises and situations as presented by the therapeutic recreation specialist should be acted out by the client demonstrating an assertive response. These role-playing experiences should include developing the elements that constitute an assertive act:

a) Eye Contact—look directly at another person while speaking to him. The eye contact element of an assertive act is particularly difficult for the totally blind or partially sighted individual with the characteristics of peripheral vision, light perception, or poor visual acuity. Dr. David Hartman, Pennsylvania State College, the first blind individual to graduate from medical school in one hundred years, considers the inability to make eye contact a disadvantage to him when discussing business and personal matters with sighted individuals. However, he simulates eye contact by positioning his face parallel with the vocal cues of the individual he is communicating with. The visually impaired client should practice localization via vocal cues, and the placement of face parallel with cues. b) Body Posture—when speaking to another: face that person, stand or sit appropriately close to them, lean toward them, hold the head erect. c) Gestures—accent the message with appropriate gestures. For example, a zealous message might be emphasized with tapping on a table. Many visually impaired individuals who become emotionally excited and involved with a feeling tend to emphasize their position or stand on a subject with “blindisms.” Intense body rocking, finger flicking, swaying, or eye poking will be distracting to the sighted individual they are asserting themselves with. Intense, overt blindisms will diminish the effectiveness of the message the individual is attempting to communicate. d) Facial Expression—Use an expression that agrees with the emotion of the message. Anger should be accompanied by a furious expression rather than a smile. Pleasure should be expressed attended by a smile as opposed to tense facial muscles. Appropriate facial expressions should be role-played by the client so that they will fully understand communication accompanied by facial language. Facial expressions to be practiced are the facial reactions to emotions such as joy, satisfaction, happiness, sympathy, concern, grief, despair, worry, fear, apprehension, resent-

## BASIC EXERCISE FOR PRACTICING ASSERTIVE LEISURE BEHAVIOR

*Directions:* Ask clients to read through the following situations. All situations will be role-played, so that a non-assertive, aggressive, and assertive response is demonstrated by the group. Make certain that all clients have a number of opportunities to role-play. These situations may be re-written so that they are relevant to the population that the therapeutic recreation specialist is dealing with.

### *Situations*

1. You've just transferred from the state school for the blind to a school in your home school district. You're interested in the after-school choir group, but the director says you can't participate because you're blind and it would be impossible to put the music in braille.
2. You are aware that there's a weekly roaming “poker” group that meets Wednesday evenings in your apartment building. Although you enjoy cards, and have several decks of braille cards, no one has asked you to join.
3. You enjoy roller skating as the result of an activity class. You've heard of a new rink opening and would like to go skating, but you don't want to go alone. You'd like to convince your friend to accompany you.
4. You've heard of a bowling league that you'd like to be a member of. You signed up (over the phone), arranged transportation with a friend who plays on this league. You have arrived at the alley prepared to assist your new teammates to win this season. As you set up your portable guide rail, the league organizer informs you that you're “cheating” by using a rail.
5. You would like to do nothing this evening but relax, alone. Some friends drop in, and it seems that they have the intention of staying for the entire evening.
6. Your state “aid to the blind” check goes to your guardian. You need more money out of that check to do “fun” activities. You must ask your guardian for more money.

ment, anger, pride. e) Voice Tone, Inflection, Volume—A level, well modulated conversational statement is convincing without being intimidating. f) Timing—Select the appropriate occasion for delivering the message, for example, privacy rather than in front of mutual friends. g) Content—Express oneself in an honest, open manner identifying the feelings involved.

5. Clients will need the experience of bringing to sessions the current life situations troubling them (as recorded in the log) and role-playing the appropriate assertive responses. This type of exercise makes the therapy immediately relevant to the client's life.

6. Practicing the verbal expression of positive feelings toward themselves and others will be a valuable experience for the clients. Becoming proficient at using verbal handles to express positive feelings can only help the individual in self-acceptance and the ability to defend the self.

7. Likewise, practice in putting angry feelings into words will provide a better way of communicating anger.



This type of therapy is best used in a small group setting of no less than five clients, but no more than twelve. A group of this size is intimate and less threatening than a large group. It permits interaction with a variety of personalities, provides a climate where an individual is not the only one with "problems," and provides the important positive experiences and reinforcement necessary when introducing new behavior into the behavior repertoire. It is significant that therapists realize that they may initially be the only individuals in the group capable of modeling assertive behavior. Nonetheless, after extensive modeling by the therapist and role-playing of assertive behavior by clients, it is certain that group members will also be capable of assuming the assertive role.

Assertive training is not presented as a cure-all for self-defeating behavior. It presents a technique in which clients can become responsible for their leisure attitudes and competencies and free themselves from the constraints of manipulation. It is not necessary for all types of personalities, but for individuals who experience difficulty in expressing their wants and needs, it can be a successful technique. ■

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## Insulin: Mass Production?

There is scarcely enough insulin available today to meet the needs of diabetics, yet the number of diabetics is increasing, while the livestock sources of insulin are actually decreasing. Tragedy may be avoided by the application of new knowledge of the highly complex chemical processes involved in the manufacture of insulin within living cells. It has already been discovered that insulin is made from a larger protein known as proinsulin. Now, biochemists working with messenger ribonucleic acid (mRNA) isolated from the pancreas of rats, discovered that the protein produced by this mRNA in a test tube was even larger than proinsulin. They named it preproinsulin. If the researchers can positively identify the mRNA that makes preproinsulin, proinsulin and finally insulin itself, then it will be possible to isolate and characterize the genetic material involved in insulin production. The next stage would be to synthesize this gene or genes. Ideally, these synthetic genes could be incorporated in the pancreas of diabetics to manufacture the insulin, *in situ*. It is not known whether this would work, but, using a new technique known as recombinant DNA engineering, it should be possible to change the metabolic processes of bacteria so that they will produce insulin—in large quantities, that could then be used to treat diabetics.

## Corporations' Charitable Donations Rising

American corporations spend \$2.25 billion a year on philanthropic causes, such as health, education, welfare, and culture, according to a recent report of the Conference Board. The Board, a non-profit research organization, also reported a 10 percent rise in contributions for 1974 over the previous year. During the decade between 1964 and 1974 corporate donations increased 71 percent.

Of the overall \$2.25 billion, approximately half is given directly to philanthropic causes and reported to the Internal Revenue Service as charitable contributions. The other half includes business expenses that support philanthropic activities, such as cash grants; donations of corporate employees to public service projects; special employment programs for hiring drug addicts, ex-convicts, and handicapped persons; and the use of corporate facilities.

The Conference Board said that the major reasons for corporate philanthropy include good corporate citizenship; a belief that public service is essential for long-term business survival; a desire to set an example for others; and promotion of a healthy, prosperous community in which to live and work.



# New Center Incorporates Many Safety Features

**FREDERICK M. KRUGER, PH.D.**

The Helen Keller National Center for Deaf-Blind Youths and Adults moved into its new facilities in Sands Point, New York in June.

To give you some idea of the wide range of special features incorporated into our new facilities, I would like to describe a number of them.

First is our fire alarm system. It was designed to meet all fire department requirements. At the same time, certain enhancements were included to provide visual, as well as auditory, signaling of an alarm. Every room in the Center has one or more bright lights that flash when the alarm is sounding.

In each resident apartment, special vibrators are connected to the beds. While they will be used mostly with alarm clocks to provide "wake-up" signals, they will also be activated in a unique manner to indicate a fire alarm. Simultaneously, the electric fans, which are mostly used as door bell "ring" indicators, will also be activated. We have provisions for adding the wireless signaling capability, as soon as the Wrist-Coms are developed to the point where they can be used.

Every time a fire alarm sounds, checks are made of every room in each building by staff fire marshals, to be sure that no one misses the alarm signal. Obviously, this is especially important during the time we have no wireless signaling system—particularly for the totally deaf, totally blind client.

There is a special emergency chute in the rehabilitation, training and research building. In an emergency, a person on the second floor can push open the emergency chute door, sit down and slide down the spiral chute, through an automatically opening exit door, to safety outside the building.

Additional safety for the deaf-blind trainee at the Center is provided by continuous hand railings on both sides of staircases, with extensions of the inner railings beyond the bottom steps to assure proper guidance, and a wide carpet insert at the top of each staircase to indicate the first step.

The sidewalk between the residence and training buildings has an electrical defrosting system. The wheelchair ramp from the training building is set off to one side so that it does not provide a hazard to blind persons who do not need to use it.

Throughout the Center, lighting has been carefully selected to be glare-free and of proper intensity. Certain areas even have variable intensity lighting. This is particularly useful in preparing trainees with some useful vision for work under various lighting conditions. Outdoor lighting along the walks is designed to provide higher than usual levels of illumination, while keeping glare to a low level.

In the gymnasium, the floors angle upwards near the walls to warn of possible collision with the wall. Since the floor near the doors cannot be sloped, it has a heavy carpet set into it to indicate closeness to the exit.

Behind the basketball basket, thick pads cover the walls to protect players. Even the outdoor roller-skating rink, and the jogging track which encircles it, feature large, smooth, continuous waist-level guide rails along their circumference to provide security.

There are elevators in two of the three buildings. Since it is possible that a number of trainees coming to the Center will have had no experience with elevators, special efforts were made to provide increased safety and security. First, there is a special higher intensity strip light in the ceiling just outside the elevator to highlight the elevator frame and make it easier for trainees with some useable vision to orient themselves. These lights are specially connected so that they will remain on even if there is a general electric power failure. As one comes close to the elevator, he finds that the waist-high push button panel used to call the elevator is labeled in braille—"up" and "down." Also, when one of the buttons is pressed, it remains in until the elevator has arrived and the doors have opened. Once inside, one finds that there are a number of braille floor-number labeled push-button panels around the perimeter of the elevator car at about chest height. This is so that each person entering the elevator can stand near one of these panels, press the button for the desired floor, and maintain finger contact with the depressed button until it "pops" out to indicate the desired floor.

These are a few of the special features. Some, like the special push-buttons in the elevators, probably won't be found in many other places, but in an environment like ours, where some deaf-blind persons will use elevators for the first time, they are important. Other features, like the shoulder-high raised room numerals to the right of every door, could be easily installed elsewhere.

*Dr. Kruger is director of research at the Helen Keller Center. Reprinted with permission from Nat-Cent News, Vol. 6, No. 4, July, 1976.*



**Specially designed elevator with chest-high, braille pushbutton panels.**



# Review

**Public Policy and the Education of Exceptional Children**, Weintraub, Abeson, Ballard, LaVor, Eds. Reston, Va.: Council for Exceptional Children, 1976.

Reviewed by Barbara D. McGarry

"It is estimated that there are 8 million handicapped children in this country. Many of these children do not receive appropriate public education; about one million receive no educational services at all. The prime responsibility for remedying this tragic situation lies with the State and local governments. However, enactment of the Education for All Handicapped Children Act implies increasing Federal support in this area. This committee firmly believes that strong support at all levels of government is required if we are to provide our children with the fullest possible access to educational opportunities."

These words are taken from a U.S. Senate report (Senate Report 94-997, H.R. 14232, fiscal 1977 appropriations for Labor-HEW), which recommends over a half-billion dollars to be spent this year by the federal government to assist the states in educating children growing up without a chance to test their own ability. But the reader might well ask, "Why has it taken so long?"

The answer, together with a penetrating analysis of the massive effort it has taken to achieve this degree of support, is contained in a series of 20 remarkable essays by specialists contributing to *Public Policy and the Education of Exceptional Children*.

This book, termed a "resource package" by the editor, is divided into five sections tracing different aspects of the development of such policy: the educational rights of exceptional children; state and federal policy, past and present; avenues for public policy change; understanding the political process; and professional rights and responsibilities. Taken together, they provide a fascinating illustration of the interplay of executive, legislative, and judicial power elicited for the goal of reaching those children whose educational potential was consistently minimized or ignored until the beginning of this decade.

## Rights of Exceptional Children

All three sources of political power, for instance, have joined in articulating the varying rights that advocacy groups have won for exceptional children—the right to a free, appropriate public education; due process of law in defining that education; learning in the least restrictive educational setting; non-discriminatory testing; and confidentiality of a student's records. Although the words "exceptional child" usually are interpreted to mean physically or mentally handicapped, here it also includes the extraordinarily gifted or talented child—children exceptional at either extreme. In more than 30 states, the legality of denying a public education to a handicapped child has been successfully challenged on the basis of the Fourteenth

Amendment to the Constitution, which guarantees to all citizens equal protection of the laws—in these cases, applied to the state compulsory school attendance laws. If some of the now-repealed state laws cited sound medieval in their prescribed treatment of handicapped children, there are others still on statute-books, awaiting full public scrutiny and re-evaluation. A formidable new legal tool, in addition, has begun to be utilized by the courts since this book was compiled; in West Virginia and two other states, judges have cited a section of the Rehabilitation Act of 1974 forbidding discrimination against the handicapped by any agency that receives Federal funds (P.L. 93-112, Section 504). In effect, as one essayist points out, "It is no longer the case that the child must fit the class. It is now the case that the class must fit the child." To this requirement is added parental involvement and approval, discarding forever the mystique in which some educators have traditionally wrapped themselves in order to override or ignore expressions of parental concern.

## State and Federal Laws

The second section of *Public Policy* explores the current "state of the public art" for both handicapped and gifted children, tracing its evolution to the present time at the state and federal level. Included in this section is a compilation of state statutory responsibilities for the education of handicapped children up to July 1, 1975, implementing the requirements of P.L. 93-380 and P.L. 94-142, the two federal laws requiring such implementation as a prerequisite for continued receipt of federal funds. A 1974 survey of increase in state funds (Education Commission of the States, 1974) for this purpose documented an average increase of 60 percent, for an annual total state and local contribution of approximately \$4 billion, to which is added approximately one-half billion in federal funds for the current year escalating on a yearly basis until 1982, when federal funds will provide \$3.16 billion per year, or a permanent 40 percent of the costs of educating handicapped children. A list of 295 federal laws benefitting the handicapped is appended to this section. Particularly impressive is a set of model state laws, designed by the Council for Exceptional Children, "to provide a full legal basis for practicable and effective programs of education for handicapped children," for use by those states considering a major overhaul of their education statutes.

Section three of *Public Policy* examines possible methods for public policy change through State statutory law, special interest group pressures, executive rules, regulations and guidelines, opinions of State Attorneys General, and extensive analysis of the route of litigation, both by class action and individual lawsuit.

The fourth section, understanding the political process, offers a lighter approach than might be anticipated from previous sections, without in the least detracting from its importance. The hazards of timing and circumstance surrounding a legislative proposal are discussed in the context of specific bills, such as attempts to enact federal day-care legislation, and legislative reform movements at the state level.

The final section, on professional rights and responsibilities, presents practical dilemmas faced by the teacher as a child-advocate, as a public school employee, and as a rung in the ladder of educational hierarchy. Appended are excerpts of relevant judicial decisions on these points, and an unfortunately brief chapter on accountability, which only parenthetically deals with the vitally interrelated "right to treatment" concept for handicapped children. The final chapter of the book reprints policy statements, developed by both the American Federation of Teachers and the National Education Association, on Teacher Rights and Ethics. Pondering these refreshing innovations from older stereotyped dicta—and indeed, the new concern for the handicapped child—the reader can only conclude, "You've come a long way, baby."

Ms. McGarry is a specialist in governmental regulations for the American Foundation for the Blind.

**The Wild Boy of Aveyron**, by Harlan Lane. Cambridge: Harvard University Press, 1976. 351p. \$15.00.

Reviewed by Mary Ellen Mulholland

Readers who have seen Francois Truffaut's exquisitely human film, "The Wild Child" (originally released several years ago, it frequently turns up in revival houses and college campus film events) are familiar with the basic outlines of the efforts of Jean-Marc Gaspard Itard, a young doctor with an unorthodox medical education, to educate Victor, France's celebrated "enfant sauvage."

For persons who have seen the film and want to know more of this strange story, for anyone interested in the history of special education, the publication of *The Wild Boy of Aveyron* is a very special event. This new book, at once scholarly and well-written (itself, a rare combination) by Harlan Lane, chairman of the Department of Psychology at Northeastern University in Boston, relates in depth for the first time in English the details of this singular experiment, the historical, philosophical, and scientific ideas that inspired it, and the legacy it left to education of the deaf, the retarded, and the physically handicapped.

Victor's story began in 1797 when peasants in the Aveyron region of south central France first began seeing a naked boy roaming the forests of the area. Twice between 1797 and 1799 he was captured, despite strong resistance. Twice he escaped, the second time to climb high into the inhospitable nearby mountains. Then, on January 8, 1800, for what reasons we will never know, he voluntarily came down from the mountain and walked into a dyer's workshop at the edge of the small village of Saint-Servin.

## "What is the nature of man?"

Word of his arrival spread quickly and within two days district authorities had placed the boy, who appeared to be about 12 and seemed deaf and mute, in the or-



phanage at Saint-Affrique. Letters from Saint-Servin and Saint-Affrique soon brought the boy, who was already being called "l'enfant sauvage de l'Aveyron" to the attention of the government and intellectual elite of France. Philosophers, natural scientists, educators all begged for the opportunity to examine and study the boy, who they seemed to feel, might lead them to an answer to that central question of the Enlightenment, "What is the nature of man?"

During the next months, Victor was examined and observed by a number of France's most eminent thinkers, including Pierre-Joseph Bonneterre, a professor of natural history and collaborator on the *Encyclopedie methodique*, the successor to Diderot and d'Alembert's *Dictionnaire des sciences*, and Philippe Pinel, director of the Paris insane asylums and the leading authority of the day on mental disorders. In their observations and diagnoses (which are published in full in *The Wild Boy of Aveyron*) these men reluctantly came to the conclusion that Victor was a congenital idiot and thus ineducable. His inability to acquire language, even though he was evidently not physically deaf and mute, weighed heavily in their conclusions.

Finally, and as a last resort, Victor was entrusted to the care of Roche-Ambroise Sicard, director of the Paris Institute for Deaf-Mutes, who had recently appointed Itard the staff doctor. Itard did not agree with the pessimism about Victor's educability and volunteered to try.

#### Itard's First Reaction

In light of his optimism, Itard's first meeting with Victor, which occurred in the summer of 1800 in the Luxembourg Gardens near the Institute, must have been trying for he later wrote that the boy he encountered that day was "a disgustingly dirty child affected with spasmodic movements, and often convulsions, who swayed back and forth ceaselessly like certain animals in a zoo, who bit and scratched those who opposed him, who showed no affection for those who took care of him; and who was, in short, indifferent to everything and attentive to nothing."

Nevertheless, the experiment began for Itard was convinced that, "psychological man more than physical man has his idiosyncracies and individual differences; and it is the task of medicine more than any other science to study them and to bring to bear on their correct evaluation and development the resource of knowledge in physiology. Medicine has risen to new heights in our time through the psychological treatment of mental disease; it can acquire even greater luster by shedding light on the path of education." Itard also believed that reduced sensory capacities could be environmental in cause as well as physical and that they could be developed through training. Thus, his interest in Victor.

Itard's efforts did not produce an answer to the question, "What is the nature of man?" We are still looking for one today. Nor were his efforts to educate Victor entirely successful although amazing progress was made in some areas and the failures, we now know, were not always the child's fault. Victor never did learn to speak but Lane discusses at some length the

complexities of this issue and the difficulties in pinpointing the failure.

#### Methods Used

Today, the methods Itard used to educate Victor are commonplace: shifting the focus of instruction from the material to the learner; continuing observation; the use of all senses; behavior modification; constant restructuring of the training sequence depending on the pupil's behavior; the importance of social skills; and the development of special instructional materials.

And, alas, many of the areas where Itard was, perhaps, responsible himself for failures are also all too common today: prudishness about sexuality; lack of sensitivity to possible cultural barriers to education; reluctance to part with preconceived notions; an inability to recognize the value of building first on the pupil's own skills and interests; failure to see the importance of the learning that can take place outside formal training sessions.

Because of the extraordinary contemporary interest in the efforts to educate Victor, Itard's work was very well documented and the observations of most of the others who came into contact with the child were too (but, unfortunately, not those of Mme. Guerin, Itard's housekeeper with whom Victor lived and with whom he formed the only emotional ties he had). Lane has used these materials, some long lost and translated into English for the first time, to great effect in *The Wild Boy of Aveyron* not just to tell the story but to discuss them in terms of the knowledge we have available to us today. And the alternatives. This approach is particularly valuable in the discussions about language acquisition in general and by the deaf in particular.

The book also includes sections on the influence Itard and his follower, Seguin, had on the development of Maria Montessori's theories and methods, on education of the deaf in the United States and Great Britain, a chronology, a bibliography, notes, and a good index.

*The Wild Boy of Aveyron* can be read on many levels and for many reasons. As a history of the beginnings of special education. As a history of some aspects of the education of the deaf. As an object lesson in the complex interplay between theory and practice. Even as an appeal for increasing attention to the education of the multiply handicapped. As the story of a teacher and his pupil.

It is as the last that I want to remember the book. Whether because they are doers rather than theorists, active rather than reflective, and rarely keep journals or otherwise carefully document their working lives, or because the teacher-pupil relationship is essentially a private one, the ways in which individual educators work with specific pupils have rarely been the subjects of interesting and provocative books that both illuminate and critically examine the process.

This is a pity. The roles that teachers play in all of our lives make their lives and work at least as valuable to us as those of politicians, statesmen, actors, and athletes.

*Ms. Mulholland is managing editor of the New Outlook.*

## Letter to the Editors

To the Editors:

I enjoyed reading Dr. Turner's article (The Place of CCTV in the Rehabilitation of the Low Vision Patient) in the May 1975 issue of the *New Outlook for the Blind*. The article is well-written, thorough, and substantially accurate. However, there are a few points deserving of mention, which are based on information which may not have been available to Dr. Turner when the article was written.

1. There have been, at various times, as many as 15-20 firms engaged in the production of CCTV systems (Dr. Turner mentions seven as of September, 1973). However, there are at present only three firms actively producing and marketing such devices, with any continuity of operation. The possibility that a supplier may not be in business forever is certainly an important point for prospective users to consider.

2. Magnifications as high as 60X are readily obtainable with most current commercial devices, rather than the 25X noted by Dr. Turner, although most users seldom go above 30X-40X, and the average is probably 15X-20X.

3. "Lack of portability" is mentioned as a disadvantage of CCTV systems. Reasonably portable systems have been available for quite some time from the two major manufacturers of such equipment (27 pounds from Visualtek, and about 30 pounds from Apollo Lasers).

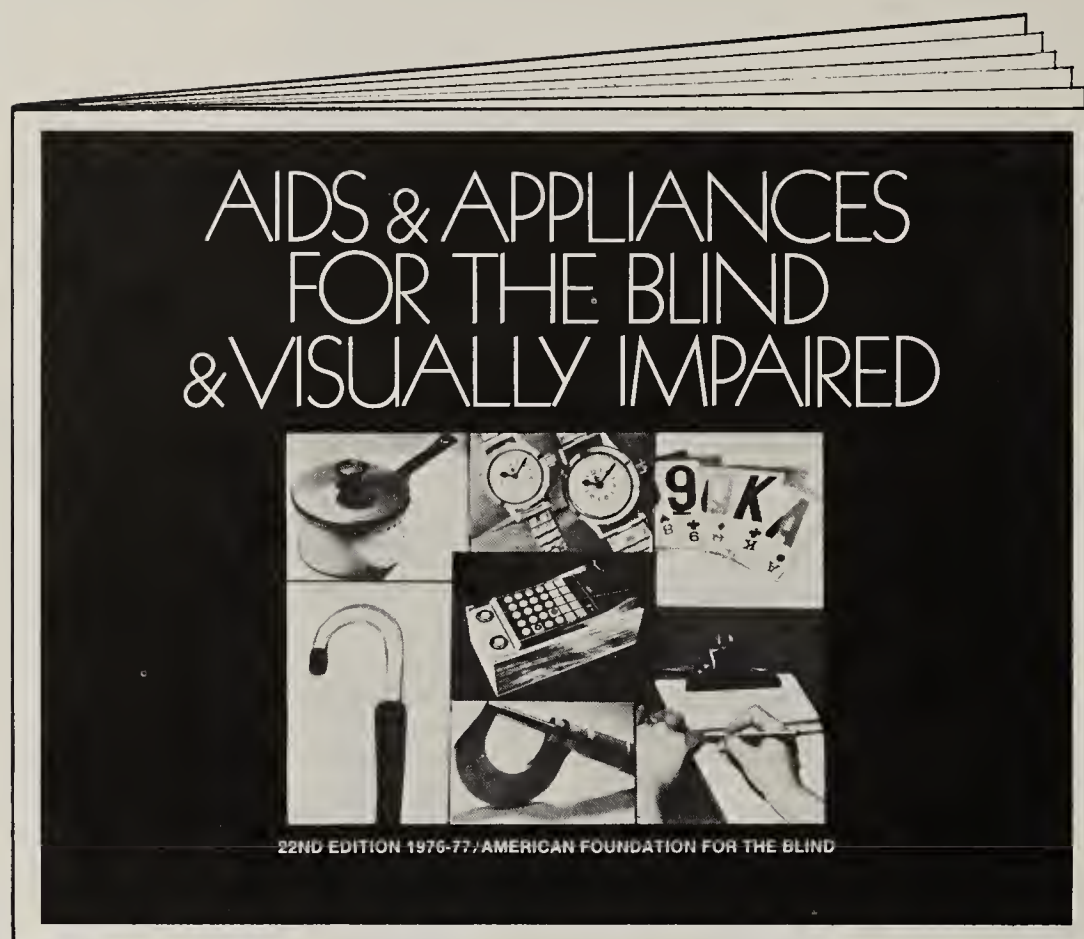
4. Current sales are in fact quite higher than the 725 units per year mentioned by Dr. Turner. Visualtek alone produces more than this, and we estimate that total annual sales are in the vicinity of 1,200-1,300 units per year at present, and still growing. Also, the potential market is probably expanding at a rate considerably greater than 2,000 persons per year, although the exact number is difficult to gauge.

5. Many users have developed innovative and practical techniques for reading at well above 200 words per minute (the figure stated by Dr. Turner), and we believe that many users readily achieve 400-600 wpm, although there is no authoritative or independent verification of this.

The article is certainly one of the better ones published on this subject, and I hope that the *New Outlook* will continue to present this kind of material.

*Larry Israel, President  
Visualtek  
Santa Monica, Ca.*





The 22nd edition of the AFB Catalog of Aids and Appliances for the Blind and Visually Impaired is now in print. This 32-page catalog, which has been completely re-designed, lists over 300 different items; more than 50 are offered for the first time.

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Braille and disc editions are also available.

# Comment

*A special forum for individuals to respond in detail to material published in the New Outlook for the Blind or elsewhere, to present new ideas, or to raise issues which relate to the specialized field of work with blind and visually handicapped persons. Contributions should be 350-1000 words in length.*

## Horticulture in Rehabilitation Training

### Harold Cardwell and Elly Evans

Horticulture has been found to be an effective medium for working with most clients at the Florida Bureau of Blind Services Rehabilitation Center in Daytona Beach, where it is a regular part of the adjustment training curriculum. Florida is one of the few areas in the United States that has a year-round gardening season, which perhaps allows us to place more emphasis on horticulture in our rehabilitation training program than is done in other states. Horticulture is included in the Applied Arts Department, along with crafts and woodworking, and it is primarily an elective class. There are six hours of horticulture classes every day, involving 20 to 25 clients, or about two-thirds of the client load.

The Center's horticulture program is divided into three major areas, which are taught according to the student's individual needs and interests: 1) Horticultural Therapy, 2) Vocational Horticulture, and 3) Urban Horticulture.

As a therapeutic tool, horticulture enables us to inspire, motivate, observe, and evaluate the client, while broadening his or her area of interest and knowledge. After the training program, the client can use this medium at home to extend himself into the community, sharing information with neighbors and friends about vegetables, flowers, and other plants.

#### Horticultural Classes

Horticultural therapy includes three facets of home gardening:

a) Home grounds maintenance gives clients information about lawn care, growing of plants, trees, etc., and the skills that are needed for a blind person to maintain his home grounds.

b) Fruits and vegetables instruction teaches blind persons how to plant a vegetable garden, beginning with plants and vegetables in containers, then modular or mini-gardens, dooryard gardens, and finally field-type gardens.

c) Garden hobbies demonstrates how to create a wide variety of live hobbies, such as bonsai, hanging baskets, terrariums, dish gardens, espalier, topiary, and hydroponic gardens.

Many of our clients come to the Center

with hopes of finding a realistic vocational goal, and some find it in this area. In the last ten years, some 60 clients have found employment in various phases of horticulture or agriculture as a result of this department's Vocational Horticulture instruction. These clients hold jobs that range anywhere from part-time income supplement to owning and managing a nursery or greenhouse business. In Vocational Horticulture instruction, actual job preparation is emphasized more than therapy. Instruction for interested clients is divided into three categories:

a) Income supplement instruction explains how to earn extra money at home to supplement income from Social Security, a VA pension, part-time work, or other source. Clients are shown how to set up backyard work benches, and cultivate fast-growing cash crops, such as pepper and tomato plants, caladiums, geraniums, and other annuals.

b) Basic horticulture includes greenhouse training, ornamental plant nursery training, and work experience on or off the campus, at local greenhouses and ornamental plant nurseries.

c) Business ownership teaches clients about management and money matters, SBA (Small Business Administration) Loans, FHA (Farm Home Administration) Loans, keeping a small set of books using braille, and how to make best use of county extension services.

The third major division, Urban Horticulture, may have a vocational emphasis for some clients. In this class, clients learn and practice floral design with artificial and live flowers. They may also create dish gardens, terrariums, and hanging baskets, and are given information on decorating rooms, patios, apartments, offices, and mobile homes with plants.

#### Horticulture and Rehabilitation Process

New clients coming to the Center may be in any stage of adjustment to their visual loss, but we have found that horticultural therapy can be useful to clients in any stage. The trained horticultural therapist will put the client to work in an area commensurate with his abilities and interests.

Horticulture can be extremely beneficial to a newly blinded individual who feels he has become useless and dependent. Through both the creativity and physical labor involved in horticulture he can prove to himself that he can do something. Through his work in horticulture, as in other areas of his adjustment training, the client quickly becomes aware of both his abilities and limitations. The client who says, "I'm not afraid to try anything with my hands now, even though it may take a little longer," shows that he accepts his speed limitation, but is able to adapt and make the most of his abilities.

Congenitally blind individuals can also benefit from horticulture. The greenhouse experience broadens their conceptual field and provides meaningful and enjoyable activity, helping some to feel more a part of "the real world." The calm, natural surroundings also help to reduce one's anxiety level, which seems to account for some behavioral blindisms among this group.

Horticulture provides a variety of sensory exercises which helps to strengthen the awareness of the remaining senses. Work

with varied shapes, sizes, and textures of pots, leaves, stems, tools, and other materials cultivates the tactile sense. Listening is exercised by such sounds as fans, running water, wind, and rain; hearing also helps to distinguish between certain mixing and growing mediums. The sense of smell readily identifies certain plants according to the scent of a root, stem, crushed leaf, or flower. Even taste is useful, for sampling fruits and vegetables.

Horticulture is an enriching and satisfying physical activity. As an area of knowledge and ability shared with and admired by people everywhere, it cultivates independence and self-esteem; and it is versatile enough to begin as a hobby, and grow into a career.

*Mr. Cardwell is coordinator of the Applied Arts Department and horticulture instructor; Ms. Evans, coordinator of Public Education, at the Florida Bureau of Blind Services Rehabilitation Center, Daytona Beach, Florida.*

## Scholarly Publishers Discuss Their Authors and Their Themes

### By Chandler B. Grannis

What is the current status of programs to gather new data about the scholarly publishing industry?

What fields of scholarship are emerging as significant subjects for future university press books?

What can be done with manuscripts from scholars who apparently never learned to write clear English?

What are the most effective ways for university presses to reach the library markets?

These were some of the questions that engaged the attention of about 125 members of 17 university presses meeting March 11 and 12 at Princeton, N.J. Other problems covered included financial management, contemporary production methods, relations with faculty and administration, and legal issues.

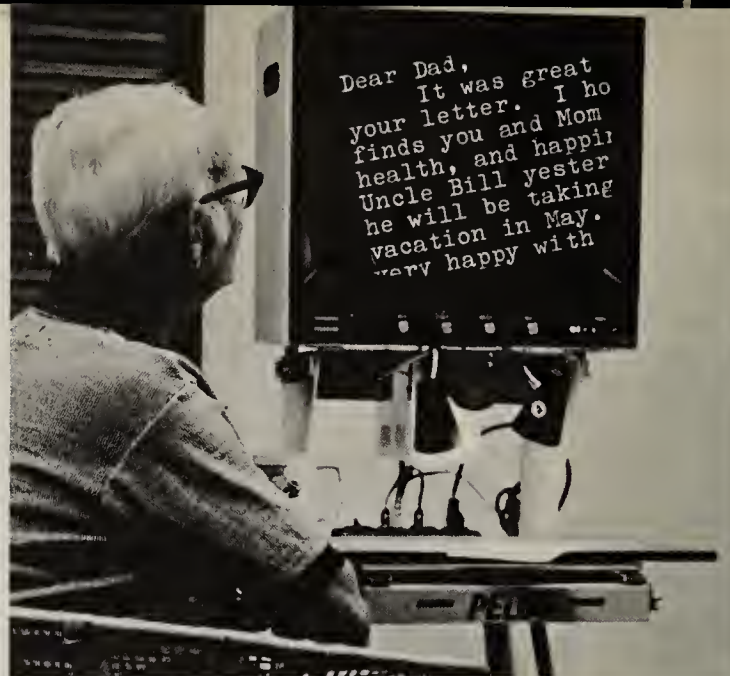
#### New Facts and Figures

Concerning current data-gathering and other research into scholarly publishing, Association of American University Presses (AAUP) President Robert G. Barnes of Columbia reported that the National Inquiry, announced at the annual meeting last June, is well under way. The National Inquiry is supported primarily by \$600,000 in gifts and matching funds from the National Endowment for the Humanities to the American Council of Learned Societies, covering two years of the program. The study embraces the entire system by which humanistic knowledge is produced and distributed in the United States.

A complementary study, conducted by Dr. Fritz Machlup, emeritus professor at New York University, was described briefly by Dr. Machlup at the Princeton meeting. With National Science Foundation support, he is studying the dissemination of scientific and technical knowledge. This study has been extended to include the



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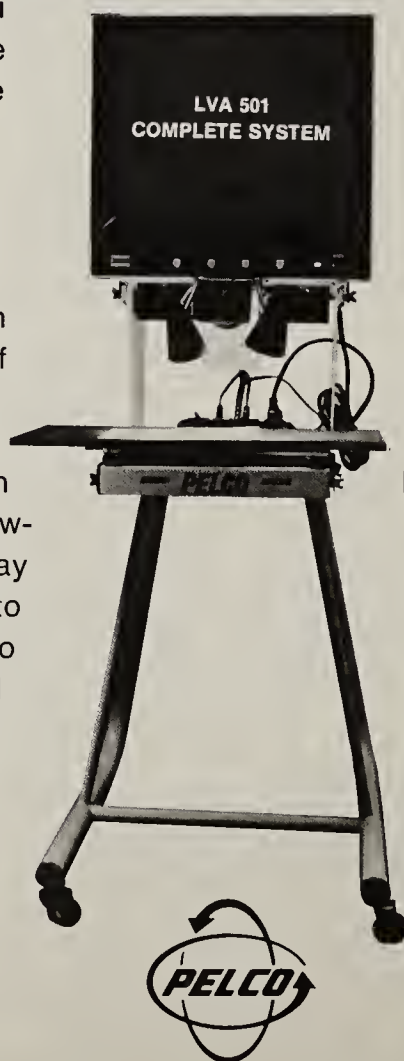
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industry of scholarly publishing in history, literature, philosophy and other humanistic fields, through an NEH grant of \$140,160 to New York University. In announcing this grant early in February, the NEH chairman, Dr. Ronald S. Berman, said accurate business and economic data are necessary to enable journals and university and commercial presses to do scholarly publishing effectively.

Dr. Machlup told the AAUP audience that researchers in the various projects would be coordinating their efforts. Studies he referred to were the NSF and NEH projects, the regular data-gathering done by Bowker, the Association of American Publishers and the AAUP, and studies to be made by the newly formed Book Industry Research Group, Inc.

Dr. Machlup noted reports showing that libraries are now spending more money to buy fewer books than they did four to six years ago. He estimated that a hypothetical "typical" research library would have been able to buy 45 percent fewer books in 1973 than it could have bought with the same amount of money in 1969. He said his projects would include "user studies" in an effort to learn what actual use is given to books and journals purchased in specialized fields by academic libraries.

What subjects, broad or specialized, are likely to form the contents and affect the nature of scholarly publications in the near and foreseeable future? Three Princeton University scholars who are also advisers to the Press offered a rich collection of possibilities.

### Directions in the Sciences

In the sciences, the rate of change is so fast it is almost frightening, said John Tyler Bonner, professor of biology. A field—for instance, population biology—starts with a few adherents and soon commands many scholars. Shifts largely occur because of surges of interest on the part of bright young scientists.

Journals, he pointed out, have grown to unmanageable numbers as new fields of inquiry are opened up, and graduate students cannot be expected to keep up with them. It is necessary to resort to general publications—*Nature*, *Science*, and *Scientific American*; journals in one's own specialty; and computer printouts of abstracts identified by code words and extracted from data banks. The need is evident, he said, for "handy digests" and informative reviews. Annual reviews or reports in book form may be better than overly condensed journal reports, but data in books may be out of date by the time they appear. Professor Bonner felt research monographs and top-quality books on research were the most welcome publications.

Future directions for publications—depending on "where the young people are going"—include: neuro-biology and neuro-behavior; further developments in molecular analysis; and continuing work in population biology. He said that more cooperation between the physical and natural scientists and the social scientists "is going to happen."

Carl E. Schorske, professor of history, foresaw a continuing growth in studies relating natural sciences and humanities. Dr. Schorske said, "Mathematicians and historians are getting together," and ad-

vised the presses: "Watch those people."

Many faculty leaders today were young graduate scholars in the 1950s, he continued; today's young scholars were graduate students in the 1960s, and are asking very different questions; for example, about the role of methodology.

Political science, history and especially anthropology are drawing models from the humanities, especially from linguistics, Professor Schorske said. The interrelations of cultures will be increasingly studied, not just their structures; and the dynamics of popular culture will be more fully examined in relation to elite cultures. The sociology and history of the professions will be a promising area, he predicted.

Theodore J. Ziolkowski, professor of comparative literature and Germanic languages and literatures, pointed out that in the humanities there will be increasing pressure on the job market, which is mostly in the universities. There is also increasing pressure to publish; and to become an assistant professor, it is necessary to publish something significant. So more and more articles are submitted to journals, but their quality is decreasing. Many Ph.D.s of the 1960s simply cannot write, and they are submitting bad manuscripts; some of these are nothing more than old, unretyped term papers. "I hope you'll resist these," he said. "They are no credit to the humanities, and if you revise them you will only be transferring responsibility to the press."

Interesting developments in the humanities, he continued, include the use of computer technology in music and painting, and of metrics in history. The most rapid explosion, he said, is in linguistics—socio-linguistics, psycholinguistics, anthropology and linguistics, and so on. He predicted increased interest in the relation of literature and science—to which a branch of the Modern Language Association is now devoted; and of literature to anthropology, psychoanalysis and sociology; literature to the business of publishing; literature to religion; literature to music; and studies of "nontraditional" cultures.

Countering the trend to specialization, the speakers agreed, is a tendency for subgroups to come together. "There's a fluidity which interdisciplinary work has brought about," was the way Professor Schorske put it.

After hearing from the scholars, members of the presses divided into workshop groups. One of these, an editorial workshop led by Miriam Brokaw, spent some time on the problem of badly written manuscripts. Views on this ran to extremes—from a policy of insisting that a manuscript be in usable condition before the procurement editor turns it in, to a willingness to "do a lot of old-fashioned rewriting." For some presses, the answer seemed to lie in deciding whether a manuscript had such intrinsic value that it was worth the time and other expense to make it publishable. But others asked whether scholarship isn't defined in part by clarity of thinking, and whether a sloppy presentation can represent clear thought.

*Reprinted with permission from Publishers Weekly, April 12, 1976.*

# Current Literature

*A report of significant new additions to the M.C. Migel Memorial Library of the American Foundation for the Blind, prepared by Elaine M. Siegel, librarian. These materials may be borrowed from the library.*

## Adjustment to Blindness

**Issues in Caring for Blind Patients**, by Cynthia Diane Dickstein. *The Journal of Practical Nursing* (National Association for Practical Nurse Education and Service, Inc., 122 East 42nd Street, New York, New York 10017), Vol. 25, November 1975, pp. 31-32, 36. The author, an orientation and mobility specialist, directs this article to nurses involved with the newly blinded. She discusses the prevailing attitudes of the blind and the sighted toward blindness, the stages of the adjustment process, and specific guidelines for interacting with the blind hospital patient. The article concludes with a review of the sighted guide technique.

## Art for the Blind

**Art At Their Fingertips**, by Mary Ann Houpe. *The Record* (Tennessee Department of Human Services, 410 State Office Building, Nashville, Tennessee 37219), Vol. 39, No. 3, May 1976, pp. 8-9. Report on "Tactile Tour" program at the Brooks Memorial Art Gallery, Memphis, Tennessee. Gallery docents, whose preparation for the tours includes blindfold training, offer visually handicapped tour participants, on a one-to-one basis, a detailed commentary on the artwork, enhanced by tactile exploration of sculpture pieces. Architectural features of the gallery itself are also examined tactually.

## Deaf-Blind

**Our New Challenge: Recreation for the Deaf-Blind**, edited by Steve A. Brannan. Northwest Regional Center for Deaf-Blind Children (Community Services Division, Department of Social and Health Services, 3411 South Alaska, Seattle, Washington 98118), July 1975, 177p. Based on the proceedings of the Northwest Regional Conference on Recreation for the Deaf-Blind, Wemme, Oregon, March 9-12, 1975, coordinated by the Special Education Department, Portland State University, in cooperation with Northwest Regional Center for





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Deaf-Blind Children, Seattle, Washington. Included in this publication are the keynote address by Dr. Richard Kinney, as well as 19 papers pertaining to national trends, interdisciplinary considerations, community organization, curriculum, and information resources.

### Early Childhood

**Foster Family Care for Visually Impaired Children**, by Pauline M. Moor. *Children Today* (U.S. Department of Health, Education, and Welfare, Office of Human Development, Children's Bureau, Washington, D.C.), Vol. 5, No. 4, July-August 1976, pp. 11-15. Intended for foster parents or other caretakers, the article recommends that, initially, a professional explanation of the child's visual impairment be sought, to clarify the implications of congenital or adventitious vision loss and potential use of residual vision. Specific suggestions and activities are offered for enhancing the child's motor development, communication skills, self-help and social skills, and for obtaining assessment and educational services.

**The Effects of Blindness and Other Impairments on Early Development**, edited by Zofja S. Jastrzemska. American Foundation for the Blind (15 West 16th Street, New York, New York 10011), 1976, 210p. \$4.00. This publication of the International Research Information Service of the American Foundation for the Blind is based on a conference held in Ann Arbor, Michigan, April 24-25, 1972. Formal presentations as well as informal presentations and discussions have been incorporated into the volume, and deal with the topics: sensory deficit and motor development in infants blind from birth; a comparative study of the effects of early blindness on the development of auditory-spatial learning; somatosensory deprivation and its relationship to the blind; self-representation in young blind children; communication development in the first three years of life; temperament and the rubella child.

### Orientation & Mobility

**Traffic Signal Facilities for Blind Pedestrians**, by F. R. Hulscher. Department of Motor Transport (Box 28, G.P.O., Sydney, Australia 2001), December 1975, 21p. + Appendices. Report of an investigation into the basic requirements of a non-visual system to supplement the existing "Walk/Don't Walk" pedestrian light signals. Results of a survey undertaken in August 1975 to determine the number of blind persons in New South Wales and to assess their mobility needs in regard to traffic control signals are reported. Audible and tactile signal systems in use in Australia and various countries are described and evaluated.

### Preschool Child

**Accepting Their Blindness**, by June Oxford. *The Lion* (Lions International, York & Cermak Roads, Oak Brook, Illinois 60521), Vol. 58, No. 9, March 1976, pp. 18-20, 44. Nursery school for the blind and sighted,



established in 1970 in San Jose, California, under the auspices of the Santa Clara Valley Blind Center. Designed to integrate blind youngsters into the sighted world and facilitate the transition into public school classes, its specific goals are to remediate lagging physical and sensory development, to provide stimuli to supplant blindisms, to foster motor development, hand coordination, and eating skills, and to promote social interaction and vocabulary growth. The professional staff is augmented by volunteers, permitting frequent excursion to parks and various community sites. The sighted children also reap the benefits of the intensive sensory training, and gain familiarity with and an easy acceptance of the visually handicapped.

## Professional Education

**Simulating Age-Related Sensory Impairments for Practitioner Education**, by Tom Hickey. *The Gerontologist* (Gerontological Society, 1 Dupont Circle, Number 520, Washington, D.C. 20036), Vol. 15, No. 5, Part 1, October 1975, pp. 457-463. Part of the Gerontology Manpower Development Project initiated in 1971 at the Center for Human Services Development, Pennsylvania State University, this project was designed to translate for the practitioner information pertaining to age-related physiological changes and sensory losses among the elderly, and to assess the effectiveness of short-term training. The two sensory modalities of seeing and hearing were selected for study in the training module and simulation exercises in which 186 trainees, staff members in six extended care facilities, participated. Sunlamp goggles coated for distortion were used to impair sight under ordinary lighting conditions; a movie with portions of the photography blurred was shown and reactions discussed. A projective measure consisting of eight pictures of elderly persons was used as a pre- and post-test. On the basis of an analysis of the projective measure and participant observations, it was concluded that the training module was a successful and the in-service training was of practical benefit in the participants' work.

## Recreation

**Blind Sportsmen Compete with Sighted on Equal Terms**, by Tracy Carton. *The Copy* (Royal New Zealand Foundation for the Blind, P.O. Box 9008, Newmarket, Auckland, New Zealand), Vol. 3, No. 6, February 1976, pp. 8-12. The article depicts the wide variety of sports in which blind persons are competing—including English green bowling, swimming, ice skating, horseriding, darts, field events, cricket, sailing, rifle shooting, football, and golf—and notes whether special aids or sighted assistance are required. In anticipation of the upcoming Toronto Para-olympics, an international sports competition for the disabled, the Royal National Institute for the Blind in Great Britain has established the National Association of Recreation and Sporting Activities for the Blind, to coordinate activities of clubs throughout the country and select the ablest competitors for the Toronto games.

**Woodwork for the Visually Handicapped**, by Peter Jones. Royal National Institute for the Blind (224 Great Portland Street, London W1N 6AA, England), 1976, 36p. Compilation of articles originally appearing as a series in the *New Beacon*, September 1974-December 1975. The author, blind for over 30 years, discusses the processes entailed in working with wood—measuring, marking, cutting, assembly and finishing. Each chapter focuses on a particular skill—such as drilling, hinges, wall-plugging, dowelled joints, working with laminates, soldering—or specific projects—such as bookcase for braille volumes, bedroom stool, bedhead system. Also described are tools, aids, and kits which the author has tested or used and found suitable for use by a visually handicapped person.

## Sex Education

**Sexual Problems of the Blind**, by Maj-Briht Bergstrom-Walan and Arthur E. Gillman. *Medical Tribune* (Medical Tribune, Inc., 880 Third Avenue, New York, New York 10022), Vol. 17, No. 23, July 7, 1976, pp. 23-25, 38. This article consists of two parts: a report by Dr. Bergstrom-Walan, Head of the Swedish Institute for Sexual Research, on Swedish attitudes on sex education for the handicapped, endorsing the use of live models in the sex education of the blind; and comments by Dr. Gillman, an American psychiatrist, on the value of this method. Dr. Bergstrom-Walan cites the success of the live model approach with groups of blind 18-year-olds, but notes the reluctance of many Swedish educators to initiate this form of instruction. Dr. Gillman reports a dearth of sexual information among adolescent and young-adult blind individuals in this country, and the inadequacy of anatomical models. He concludes that the direct examination of the human body is preferable to the use of models, but concedes that acceptance of this practice in the United States is currently precluded by the attitudes held by the public and the institutions serving the handicapped. In addition, he feels that client/students must be allowed freedom of choice regarding participation in such programs.

## Talking Books

**Telebook Center for the Blind; Phase I: Final Report**, by Kenneth J. Stetten. The MITRE Corporation (Westgate Research Park, McLean, Virginia 22101), January 1976, 116p. Experimental system designed and implemented by the MITRE Corporation under Library of Congress contract #D12P-2442, July 1, 1975-December 31, 1975. This service, operated in the Washington, D.C. metropolitan area, provided immediate, electronic (telephone) delivery of recorded materials, in response to individual telephone requests from readers. During the months of pilot testing, reader response was favorable, and costs were lower than originally predicted. Appendices to the report cover technical design and performance, telebook operators instructions, reader's catalog, reader's monthly mailing examples, analysis of operator's records, and results of reader survey.

# Publications of Note

*A classified listing of books, articles, directories, pamphlets, and other material of interest to the readers of the New Outlook for the Blind, prepared by the editors. Please write to the source listed in each entry if copies or more information is desired; the materials are not available from the New Outlook or the American Foundation for the Blind.*

## Aging

**Working with the Elderly: A Training Manual**, edited by E.S. Deichman and C.P. O'Kane. D.O.K. Publishers, Inc. (Buffalo, N.Y. 14214), 1975. 144 p. \$9.50. This manual came about as a result of training sessions first held in Spring, 1970 for activity leaders in long-term care facilities. The manual contains practical guides for working with elderly, often disabled, persons and suggestions for creative and recreational activities.

**This Way to Reality**, by James C. Folsom, et al. Veterans Administration, HEW Public Health Service, and the American Hospital Administration (distributed by: National Audiovisual Center, GSA, Washington, D.C. 20409). Complete package, with color slides, cassettes, and booklet, \$112.00. This audiovisual program describes a treatment technique, based on reality orientation, that has proved helpful in reversing and preventing the major percentage of senility resulting from psychological effects rather than from brain deterioration.

## Aids, Devices, & Equipment

**Fresnel Prisms—Versatile, Beneficial, Economical**, by Randall T. Jose. *The Refraction Letter* (P.O. Box 564, Rochester, N.Y. 14602), April 1976. Describes a few practical applications for the prisms.

## Braille, Large Type, & Recorded Materials

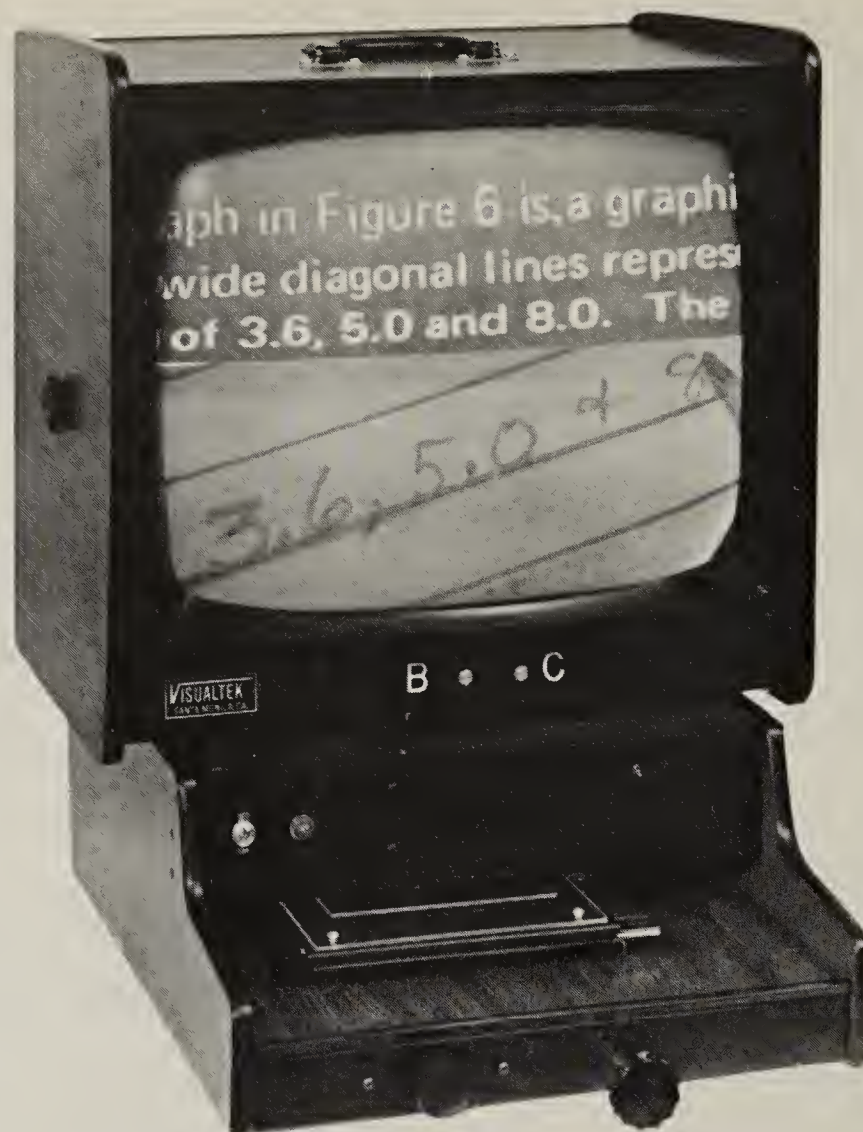
**A Guide to Good Gardening**, by Percy Thrower. Response Music Ltd. (160 Castelnau, London SW13 9ET, England), 2 records. £2.50. An introduction to gardening for blind persons.

**The New York Times Large Type Weekly**. Distributed by National Braille Press (88 St. Stephen Street, Boston, Mass. 02115), free. This national weekly paper is now available in braille, as well as large type.

## Employment

**Employing Workers with Handicaps: A Model Affirmative Action Plan for Private and Public Employers**. Governor's Committee for the Employment of the Handicapped (Jim E. Kay, Executive Secretary, 800 Capitol Mall, Sacramento, California 95814), [1976]. Single copy free. A handbook for employers on hiring the handicapped.





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## Federal Benefits

**Three Axioms for Title XX**, by Thomas N. Duffy. *The Social and Rehabilitative Record* (Superintendent of Documents, Government Printing Office, P.O. Box 1533, Washington, D.C. 20402), Vol. 3, No. 1, April 1976, pp. 18-20. The author calls for the involvement of local government in the planning of the second year of Title XX.

**Meeting Human Needs: The Social and Political History of Title XX**, by Paul E. Mott. National Conference on Social Welfare (22 West Gay Street, Columbus, Ohio 43215), 1976. \$5.00. Recounts how Title XX, the Social Service Amendments to the Social Security Act, was conceived, drafted, and finally passed in January 1975. Includes interviews with many of the key participants.

## Fund Raising

**The Federal Funding Guide 1975-76 for Elementary and Secondary Education**. Educational Funding Research Council (752 National Press Building, Washington, D.C. 20045). 400 p. \$17.95. Describes more than 100 federal aid programs, including those established under the Special Projects Act. Included are specific information and data on the federal aid process, the budget, education legislation, Congress, the Office of Education, and the National Institute of Education.

## Medicine

**Vision Screening for Migrant Children**, by Peter G. Miller. *Children Today*, (Children's Bureau, Office of Child Development, P.O. Box 1182, Washington, D.C. 20013), March 1976, Vol. 5, No. 2, pp. 6-7, 36. Migrant workers, following the crops all across the country, are one of the most mobile populations in America. Because of this, it is difficult to provide them with adequate health care services. Yet, due to low income and poor living conditions, this population is among the neediest recipients of those services.

In 1973 a mobile vision screening unit was set up in northern California to provide basic examinations and optometric care to preschool migrant children. During the two years this pilot program was in operation, over 8000 children were served. Recently the program received additional funds to provide vision screening and treatment to 30,000 school-age children throughout California.

## Perception

**Stimulus Novelty, Task Relevance and the Visual Evoked Potential in Man**, by E. Courchesne, S.A. Hillyard, and R. Galambos. California University (Department of Neurosciences, La Jolla), 1975. 37 p. NASA-CR-143139; N75-27745/9WJ. Paper copy, \$3.75; Microfiche, \$2.25. The effect of task relevance on P3 (waveform of human evoked potential) waves and the methodologies used to deal with them are outlined. Visual evoked potentials (VEPs) were recorded from normal adult subjects performing in a visual discrimination task. Findings indicate that the P3 wave is not a

unitary phenomenon but should be considered in terms of a family of waves, differing in their brain generators and in their psychological correlates.

## Publications

**Journal of Leisurability**. Leisurability Publications, Inc. (Box 281, Station A, Ottawa, Ontario, K1N 8V2, Canada), quarterly. \$9.00 per year. Contains articles on research and practice in the field of recreation for the handicapped.

**Pathology, Impairment, Functional Limitation and Disability—Implications for Practice, Research, Program and Policy Development and Service Delivery**. National Rehabilitation Association (1522 K Street, N.W., Washington, D.C.), 1976. 33p. \$2.50. Report of the first Mary E. Switzer Memorial Seminar, held May 20-23, 1975, in Cleveland. The purpose of the seminar was to discuss and define the meanings of the words "pathology," "impairment," "functional limitations," and "disability" in the hope of facilitating better communication between rehabilitation disciplines.

## Recreation

**Special Issue on Therapeutic Recreation, Journal on the Handicapped Child**. West Virginia Commission on Mental Retardation (State Capitol, Charleston, West Virginia 25305), April 1976. The articles in this issue provide an overview of a variety of recreational activities and programs for handicapped persons. All are aimed at integrating the handicapped into the mainstream of recreation.

## Research

**Support for Vision Research**. National Advisory Eye Council (available from Office of Program Planning and Scientific Reporting, National Eye Institute, Building 31, Room 6A-25, National Institutes of Health, Bethesda, Maryland 20014), single copy free. Contains data on the incidence, prevalence, and costs of eye disorders in the United States. Also includes information on current Council program planning activities, public and private funding of vision research, NEI budget and the effects of inflation on the budget.

## Statistics

**Eye Malformation in the Mentally Retarded: Social and Medical Implications of the Registration**, by Mette Warburg. *Journal de Genetique Humaine* (175 Fifth Avenue, New York, N.Y. 10010), Vol. 23, No. 3, 1975, pp. 251-267. In Denmark a registry of blind children has been in existence for over 100 years. However, seven years ago the author discovered that mentally retarded blind children were not included in the registry. To date the author has collected data on over 400 mentally retarded children who are blind or partially sighted. The prevalence of blindness in this group was found to be 5 percent and that of low vision approximately 7 percent, whereas in normal children the estimated frequency is 1 out of 1000.

# News in Brief

■ In their article in the May 1976 issue of the *Archives of Ophthalmology*, Stanley S. Tseng and Marshall P. Keyes describe the case of a nine-week-old infant examined at Georgetown University Medical Center for "funny eyes." At first the doctors thought the child had congenital glaucoma, but after further investigation discovered that the glaucoma was induced by trauma, specifically child abuse. The child has since been placed in a foster home and medical treatment has restored his vision.

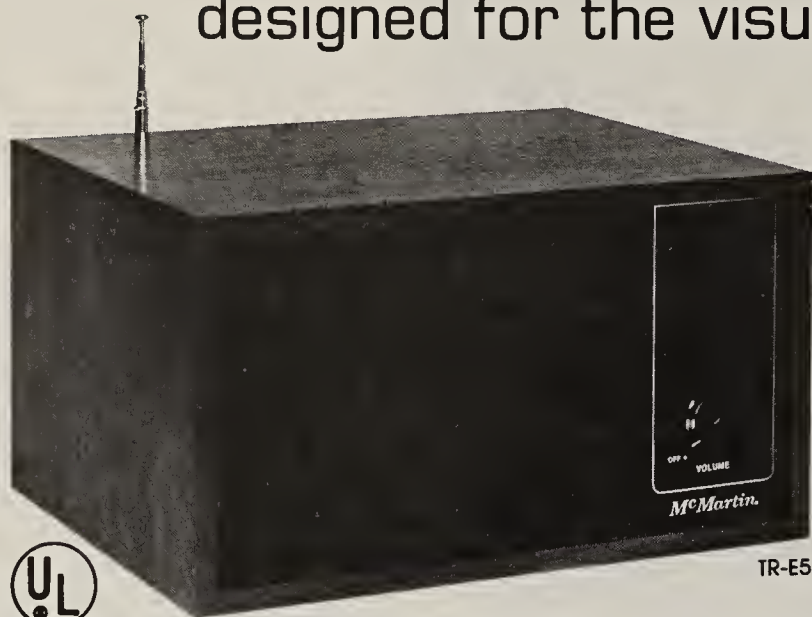
This is the first reported case of glaucoma stemming from child battering. Cases of retinal detachments and other eye injuries have been reported before. Tseng and Keyes warn that "... ophthalmologists should be on the alert for possible child abuse cases, for he may occasionally be the first one to care for such patients and eventually save them from disability or death."

■ The National Endowment for the Humanities will award a grant of \$535,000, when matched by contributions from private sources, to duplicate the master tape library of Recording for the Blind, Inc. The 34,000 title library is one of the main sources of educational materials for visually and physically handicapped students and professionals. The duplicate collection is being made so that a copy will be available should the master tapes ever be damaged or destroyed. It will be stored in a fireproof vault in Iron Mountain, New York.

■ Improving the appearance of mentally retarded persons increases their chance of community acceptance, as well as heightening their own feelings of self-worth, according to Robert D. Shushan, executive director of the Exceptional Children's Foundation in Los Angeles. Mentally retarded persons are seldom taught the basics of fashion so they tend to wear ill-fitting clothes or inappropriate hairstyles. As a result they are often stigmatized and become objects of prejudice. Shushan added that the appearance of all mentally retarded persons can be vastly improved through simple training in dress and cosmetics, including that of those persons with Down's Syndrome. To test the difference that appearance can make in attitudes, Shushan compiled two photo albums containing pictures of normal persons and mentally retarded persons, including some with Down's Syndrome. Thirty couples were asked to rate the pictures on how many physical deficits they observed. Retarded individuals not having Down's Syndrome were seen to have 70 percent fewer deficits after cosmetic inter-



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vention, and those with Down's Syndrome, 50 percent fewer.

■ Telesensory Systems Inc. (1889 Page Mill Road, Palo Alto, Ca. 94304) has been awarded a grant by the National Science Foundation to evaluate the feasibility of a spoken word output accessory for existing portable reading machines for the blind. The reading machines currently being used translate printed characters into tactile or auditory patterns. Because the blind person must then interpret this complex pattern, reading rates tend to be slow even after considerable training and practice. An output accessory utilizing synthetic speech could greatly improve reading speeds and provide access to printed materials to a much larger number of blind persons.

■ The Bureau of Education for the Handicapped, U.S. Office of Education, has awarded a grant to Technical Education Research Centers (44 Brattle Street, Cambridge, Mass. 02138) to write and disseminate a manual to assist secondary level counselors in serving physically handicapped students in public high schools. The manual will include a discussion of issues, materials, and practices relative to career guidance, personal adjustment counseling, testing, academic advisement, and job placement; a state-by-state listing of organizations which provide resources and services; and a listing of organizations who operate on a national level.

■ A reference circular entitled, "Directory of Local Radio Services for the Blind and Physically Handicapped," is available from the Library of Congress (Reference Section, Division for the Blind and Physically Handicapped, 1291 Taylor Street, N.W., Washington, D.C. 20542). The circular presents basic information about radio reading services throughout the country and includes a listing of public radio stations that offer reading or information programs specially for blind and physically handicapped persons.

■ The editors of *American Annals of the Deaf* have started a special column in their journal to provide information to professionals and para-professionals who work with deaf-blind children, youths, and adults. The column will also serve as a forum for administrators, teachers, aides, parents, and any others who wish to contribute relevant ideas concerning the education of deaf-blind persons. Material for the column should be sent to Dr. William Blea, Southwestern Region Deaf-Blind Center, 731 Capitol Mall, Room 621, Sacramento, Ca. 95814.

■ The Xerox Reproduction Center now publishes textbooks, manuals, study guides, tests, and other instructional materials in large print. The type sizes range from 14 to 24 point type and can be ordered to suit individual needs. For ordering information and price schedule write to Xerox Reproduction Center, 1616 North Fort Myer Drive, Arlington, Virginia 22209.

■ Blind babies smile at the sound of familiar voices earlier than sighted infants smile at familiar faces, according to Dr. Selma

Fraiberg of the Child Development Project, University of Michigan. Blind infants will respond to voices with smiles as early as two-months-old whereas their sighted peers usually don't smile for favored faces until their sixth month.

■ The Division for the Blind and Physically Handicapped of the Library of Congress (1291 Taylor Street, N.W., Washington, D.C. 20542) offers advice and assistance to museums and other institutions in preparing aids for handicapped visitors. DBPH has already developed aids for deaf and visually impaired visitors to the National Museum of Natural History of the Smithsonian Institution, Washington, D.C.

■ The Victorian Blind Table Tennis Association is preparing a large-type booklet of the regulations governing its version of the game. The booklet will include specifications of equipment and diagrams of play. First introduced in 1963, blind table tennis was developed to allow blind and sighted players to actively compete in the game, with neither player having an advantage over the other. For further information write, Mrs. E. Maxwell, Association for the Blind, 454 Glenfarrie Road, Kooyong, Victoria 3144, Australia.

■ The American Blind Lawyers' Association (ABLA) has announced that a \$10,000 grant has been donated by the Thomas W. and Frances Leach Foundation to establish a central legal index for blind law students and attorneys. The index, which will consist of braille and recorded materials, will be arranged by subject matter to make research easier and less time-consuming.

In addition, the Leach Foundation has presented \$1,000 to ABLA for the purchase of a rapid cassette duplicator. The duplicator will be used to disseminate recorded copies of the *American Bar Journal* to blind students and attorneys.

■ National Industries for the Blind (NIB), the General Council of Workshops for the Blind, and the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped (NAC) have announced a plan to help all workshops associated with NIB and the General Council achieve NAC accreditation. Previously NIB granted certification to workshops that utilized NAC standards and submitted a satisfactory self-study report to the General Council. Under the new agreement, NAC will give special recognition to shops that complete the self-study and consider it as a major step toward accreditation. In addition, if a workshop has already paid the \$100 certification fee to NIB, it can be applied toward the NAC accreditation fee.

■ The American Institutes for Research, with the support of the Office of Education, is planning to publish a catalog of competency-based staff development materials for guidance and counseling personnel. Competency-based programs emphasize skills required in performing tasks, skills transferrable from training to real-life settings, and predefined educational objectives specifying the results expected from using these skills. Individuals or organizations working in the field who want descriptions of their materials included in the

catalog should contact Susan McBain, Youth Development Research Group, American Institute for Research, P.O. Box 1113, Palo Alto, California 94302.

■ Special arrangements can be made for blind students to take college board admissions exams. Visually handicapped students are allowed special test editions, extended time, separate test rooms, readers, and other assistance. The Scholastic Aptitude Test is available in three editions for handicapped students—regular print, large type, and braille; all three editions are untimed. Also, special editions of the Preliminary Scholastic Aptitude Test/National Merit Qualifying Test are available for junior year students. Some colleges waive entrance exams for visually handicapped students. The student should check with the counseling department at the college he wishes to attend to find out the school's requirements and testing procedures. Further information is available in the booklet, *College Admissions Testing Program for Handicapped Students*, published by ATP for Handicapped Students, College Entrance Examination Board, Box 592, Princeton, N.J.

■ The Alan Short Center of Arts for the Handicapped opened its door for its first group of students April 19, 1976. The Center's curriculum includes classes in the fine arts, performing arts, and independent living skills. All classes are aimed at preparing the student for a vocation in the arts.

■ A *System of Braille Notation on Mathematics*, a two-volume manual developed by an expert commission of the All-Russia Association of the Blind, is now available. Inkprint copies in Russian and English may be obtained from the Central Board of the All-Russia Association of the Blind, 14 Novaja Plochad, Moscow 103672, U.S.S.R.

■ A hotline service called "Call for Compliance" has been set up by Mainstream, Inc. to provide confidential information on the new regulations in Section 503 of the Rehabilitation Act. The purpose of the hotline is to create a bridge between consumers and the Labor Department. The hotline number is (202) 833-1139.

■ The Lee McCune Braille Trail was recently opened by the Casper Mountain Lion's Club of Wyoming. The mountain trail, which was designed to be enjoyed by both blind and sighted hikers, winds around Elkhorn Creek and has a series of plaques along its length describing the surroundings in both braille and print.

■ The U.S. Civil Service Commission, Region 5, recently held a ceremony in honor of the 600th severely handicapped person hired under a special federal government program to employ handicapped persons in government jobs. The employee honored was Cynthia M. Lien, a blind transcription typist at the Veterans Administration Center, Ft. Snelling, Minnesota.

■ A new Pioneer Trail, in Rye, New York, was opened to the public in May 1976. The nature trail, which was created under the direction of the Mid-State Empire Chapter of the Telephone Pioneers of America, has



special guidelines to assist handicapped and elderly persons and cassette tapes describing the surroundings.

■ The Library of Congress, Division for the Blind and Physically Handicapped recently established its first overseas book deposit collection in the U.S. Army Hospital in Berlin. The initial collection includes 100 books and 10 playback machines which can be used by all eligible patients during their hospital stay. Before the collection was started the Library of Congress only provided services to individual U.S. citizens living abroad and to foreign libraries through an interlibrary loan.

■ A portable strip tape braille embosser for teletype has been developed by Triformation Systems, Inc. (P.O. Box 2433, Stuart, Florida 33494). The device, called Interactive Strip Embosser (ISE-1), can be used as an input/output station for data processing with computer systems, for local or on-line message preparation, as an addition to existing teletype operations, or as a companion unit to data storage equipment. ISE-1 weighs 40 pounds, is a self-contained unit housed in a small suitcase, and was designed to conform to the Electronic Industries Association RS 232-B standard.

■ Jigsaw puzzles in a variety of animal shapes and textures have been developed for visually handicapped children by the Nassau County, New York, Chapter of the Telephone Pioneers of America. Included in the jigsaw menagerie are furry rabbits, fuzzy camels, and leathery elephants.

■ The Bell Telephone System has developed a device, called the Code-Com, which enables deaf and blind persons to use the telephone. Code-Com converts sound into sight signals—a flashing light, and into touch signals—vibrations on a small disc. The signals are coded in a prearranged pattern, similar to dots and dashes. A person without speech can send a coded message by pushing a sending button. For further information about this device and other telephone services for the handicapped write, Special Needs, Dept. B, Box 99, Bowling Green Station, New York, N.Y. 10004.

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■ "Vision" is an organization operating throughout Massachusetts whose members are people with progressive eye disease or who are newly blinded. The purpose of the organization is to provide group support and information on available resources. The organization is divided into area chapters and operates through regularly scheduled meetings in the homes of group members and through a telephone buddy system. A cassette tape of a group

session held in June 1976 is available on request. For more information contact Margery O'Sullivan, 113 Tarbell Spring Road, Concord, Massachusetts 01742.

## APPOINTMENTS

■ Houston Lighthouse for the Blind, Texas: **A.B. Goodrum**, director of rehabilitation.

■ The Seeing Eye, Inc.: **Robert H. Whitstock**, vice-president for programs, and **Richard Krokus**, director of the department of instruction and training.

## AWARDS

■ Arthur Napier Magill Distinguished Service Award, Canadian National Institute for the Blind: **Marjorie McGuffin Wood**, retired national consultant to the deaf-blind, CNIB, and founder of the Canadian League for the Deaf-Blind.

## RETIREMENTS

■ Perkins School for the Blind: **Benjamin F. Smith**, director.

■ Kansas State Department of Social and Rehabilitation Services: **Harry E. Hayes**, director of services for the blind and visually handicapped.

## COMING EVENTS

### October

**11-15** American Occupational Therapy Association, Annual Meeting, San Francisco.

**15** White Cane Day.

**17-21** American Public Health Association, 104th Annual Meeting, Miami.

**17-22** National Recreation and Park Association, Boston, Mass.

**19-21** General Assembly of the World Council for the Welfare of the Blind, Committee on European Affairs, Geneva.

**19-22** National Association for Retarded Citizens, Annual Convention, Indianapolis.

**24-28** The General Council of Workshops for the Blind, Annual Meeting, Seattle, Washington.

**27-30** Western Regional Conference of the American Association of Workers for the Blind, Tucson, Arizona.

**27-30** National Rehabilitation Association, Annual Conference, Hollywood, Fla.

**28-31** International Congress of Sexology, Montreal.

### November

**7-11** The Society for Neuroscience, 6th Annual Meeting, Toronto.

**14-16** American Association of Homes for the Aging, 15th Annual Meeting, Orlando, Fla.

**17** National Accreditation Council for Agencies Serving the Blind and Visually Handicapped, Annual Membership Meeting, New York.

**19-23** American Speech and Hearing Association, Annual Convention, Houston.

## December

**4-8** American Medical Association, Clinical Convention, Philadelphia.

## 1977

### January

**24-26** National Braille Association, Regional Meeting, Kansas City, Mo.

### March

**1-4** World Council for the Welfare of the Blind, Executive Committee Meeting, Riyadh, Saudi Arabia.

**20-25** XI Pan American Congress of Ophthalmology, Santiago, Chile.

### April

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# Outlook



MOBILITY, ORIENTATION, AND NAVIGATION: THEORETICAL ASPECTS



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# The Exploration of a "Tactile Aesthetic"

JUDITH A. RUBIN, PH.D., ATR

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**Abstract:** *To investigate whether blind children have a "tactile aesthetic" qualitatively different from that of their sighted and partially sighted peers, a group of scrap wood sculptures created by blind, partially sighted, and sighted children were presented to judges who were children also blind, partially sighted, and sighted. The study suggested not a lack of aesthetic sensitivity in the blind, but rather a different aesthetic influenced as much by associative response to shape, form, structure, and stability relating to the individual's life experiences as by any "objective" standard of formal beauty. The potential usefulness of tactual stimuli for projective testing was implied, as well as a suggestion for modification in attitude and perception by sighted individuals who teach or present art to blind children.*

While working in art with a group of blind children, I became fascinated with the way in which many youngsters with no useful vision seemed to know just where to place their pieces and when to stop in the creation of three-dimensional wood scrap sculptures. The process looked similar to that observed in young sighted children, who appear to make such decisions on the basis of a sense of *visual* aesthetic "rightness" or beauty. I wondered if a kind of *tactile* aesthetic judgment was implicit in the certainty of their behavior, even though they could not see at all. I reasoned that in order to explore the experience of their three-dimensional creations empathically it would be necessary to encounter their art work as they themselves know it—without vision. I began, therefore, by blindfolding myself and several student assistants, and manually exploring the childrens' sculptures in order to get some affective sense of their form. In the course of such explorations, we discovered that when our blindfolds were removed, our feelings about what was attractive when touched often changed, sometimes dramatically.

**THE LITERATURE** Curious, I searched the relevant literature, and found that at least one worker had decided "that in the field of haptics one can hardly speak of an aesthetic appreciation in the stricter sense" (Révész, 1950, p. 201). He had indeed confirmed to his satisfaction, what he described as the non-aesthetic nature of haptic perception. Using a somewhat narrow definition of aesthetics, Révész concluded:

If a blind person imagines himself to be in the grip of an aesthetic sensation when he touches plastic works, that is due to the concomitant stimulation of tactile and kinesthetic sensations leading to the emergence of pleasureable emotions . . . The blind remain in the psychological sphere, in the sphere of slightly differentiated sensations of pleasure and displeasure, and are unable to force their way into the realm of Aesthetics (p. 205).

Von Fieandt, reviewing studies on art created by the blind, suggested that the quality of work by those born blind was relatively poor; despite his recognition of the operation of "a completely new set of 'gestalt laws' and perceptual performance" (1959, p. 212). In a study similar in some respects to the present one, Stewart asked blind and sighted judges to rate abstract sculptures he had created. His conclusion was that "there are no significant differences in overall aesthetic judgment among blind and sighted subjects (1968, p. 186).

The work of others, however, has eschewed value judgments on the degree or nature of aesthetic perception in the blind; and has focused descriptively on attempting to detail the way in which they go about both making and perceiving art (Cutsforth, 1951; Eaton, 1959; Stewart, 1968; Lowenfeld, 1952; Fukurai, 1974). My experience of working with blind children in art has taught me the importance of proceeding with a mind open to other ways of being.

**DIFFERENT AESTHETIC ENVIRONMENT** This investigation was undertaken in order to explore phenomenologically the impression that blind children have their own kind of "tactile aesthetic," qualitatively but not quantitatively different from that of sighted and even partially sighted peers. It is an attempt to test informally Cutsforth's "assumption that the blind are living in an entirely differ-



ent aesthetic environment" (1951, p. 166), and to begin to describe, if possible, the nature of this difference.

Briefly, the study involved the presentation of three-dimensional wood scrap sculptures done by blind, partially sighted, and sighted children to judges also from these three groups (none of whom had created the sculptures). The judges were asked to make aesthetic judgments about the sculptures, and to give their reasons for these judgments. It was hypothesized that judges would tend to prefer objects done by someone like themselves, and conversely, to reject those done by individuals unlike themselves in regard to useful vision. It was also hypothesized that blind children would be as interested as partially sighted or sighted children in the art work, and that their degree of interest would be reflected in the number of items to which they would respond spontaneously.

**JUDGES** Fifteen judges participated in the study. Twelve were boys and girls from a residential school for the blind who had volunteered to take part in the study after being given a brief description of it. Six of the judges (four girls and two boys) were blind, and ranged in age from 10 to 16 (mean 13.2); while the other six were partially sighted (five girls and one boy), and ranged in age from 11 to 14 (mean 12.2). In order to explore the responses of sighted children too, three sighted judges were also involved—two girls of 12 and one of 13 (mean 12.3).

The stimuli presented to the judges were three-dimensional wood constructions made of smooth maple scraps and glue, some on a cardboard base. Ten were done by children with no vision, ten by children with some useful vision (partially sighted), and ten by sighted children. All were created spontaneously in the course of group art sessions, either at a school for the blind (Rubin & Klineman, 1974; Rubin, 1975) or at a child guidance center (Rubin, 1974; Irwin, Rubin, & Shapiro, 1975). The age range of the blind and partially sighted artists was from seven to ten, and of the sighted artists from five to 12. The IQ range of the visually impaired children was low, from 56 to 87. Thus, it makes sense to consider mental rather than chronological age, in which case the mean age of the blind children was 7.8, of the partially sighted 7.7, and of the sighted 7.8. The art work, though randomly selected from among all items done in the two contexts, was remarkably similar superficially. All 30 sculptures were labeled on the bottom for purposes of identification, and were set out in random order on two large freestanding tables.

### Procedure

Each judge was interviewed individually and was given three tasks: choice of most and least liked, paired comparisons, and response to one item. The judge was told that there were wood scrap sculptures done by other children on two tables, and was instructed to find one most liked item and one least liked. For those with no useful vision, a great deal of manual exploration of the art works was necessary, and they were allowed to feel as many as they wished before coming to any decisions (Figure 1). The partially sighted judges tended to use both hands and eyes (in varying proportions) in order to get to know the art work (Figure 2); while the sighted judges were able to scan the tables full of work rather rapidly, and tended to come to a decision without touching or commenting on more than a few objects. An observer made records of all products touched and/or discussed by each judge, along with comments, which were tape recorded.

Having stated their choices and reasons for them, each judge was then presented with two somewhat similar pairs of sculptures and asked which of each pair he preferred. The sighted judges were asked to respond first to each pair wearing a blindfold (Figure 3), then to the same pairs without blindfold (Figure 4). In order to compare group responses on at least one item, the final task was to respond to a small asymmetrical sculpture entitled "Hobby Horse" by its ten-year-old creator. The two pairs of sculptures and "Hobby Horse" were not included in the original set of stimuli described earlier, and were all done by sighted children.

**QUANTITATIVE RESULTS** Four of the six blind judges chose products made by other blind children as "best-liked." As "least-preferred," all six blind youngsters selected products made by children with normal (4) or partial (2) vision. This result suggests confirmation, at least for the blind children, of the first hypothesis—that judges would tend to prefer objects done by someone like themselves, and to reject those done by someone different in regard to vision (chi square = 5.0,  $p < .05$ ). Similarly, of 24 positive responses made to products spontaneously noticed by them, the greatest number (15 or 62.5 percent) were to products by other blind youngsters; while of 20 negative responses, almost all (17 or 85 percent) were to products by sighted or partially sighted children.

Similar support for the first hypothesis was found in the responses of the sighted and partially sighted judges, all but one of whom selected products made by children with vision as best liked. The opposite trend was not visible in their least liked choices, however, which were almost equally distributed among the three categories of artists. Like the blind youngsters, those with partial vision had the greatest number of spontaneous positive responses to products by others with similar vision (24 out of 33 or 72.7 percent). As with least liked selections, however, their spontaneous negative responses were less clear cut, being approximately equally distributed among all three artist groups (3 blind, 4 partially sighted, 6 sighted). It would seem, therefore, that the positive responses (both spontaneous and specific choices) of all children tended to confirm the hypothesis that individuals prefer art work done by those like themselves. The converse tendency also held true for the blind judges in this study in regard to what they rejected, but was not present for those with useful vision.

### Spontaneous Response

The second hypothesis was that blind children would be as interested as partially sighted or sighted children in the art work, and that this would be reflected in the number of items to which they would spontaneously respond. Indeed, the degree of interest shown by the blind youngsters, who noticed 46 products spontaneously, was if anything greater than that of the partially sighted judges, who noticed 44. The sighted judges, in contrast, made their best and least liked selections rather rapidly on the basis of visual scanning, and showed little interest in exploring further the other objects on the tables, in itself a striking difference. If anything, the degree of aesthetic interest of the visually impaired children as measured by spontaneous responses to separate products was much higher than that of the sighted judges, and about equal for both blind and partially sighted youngsters.

The paired comparisons were included in order to have



some products and choices to which all judges would be asked to respond specifically. In the case of one pair there was no quantitative differences among the three groups of judges; all but one judge in each group preferred the same item. Interestingly, none of the three sighted children changed their preference following the removal of the blindfold. The second pair, however, evoked differential responses from the three groups, with the majority of the sighted (2 out of 3) and partially sighted (4 out of 6) children choosing a "building" with an opening in the center, while the majority of the blind youngsters (5 out of 6) preferred the other product, a "tower," similar in size and structure to the "building," but with no openings, a solid mass. Two of the three sighted judges, however, shifted from preferring the tower to selecting the building following removal of blindfolds, suggesting some underlying differences between visual and kinesthetic aesthetic responses.

**QUALITATIVE RESULTS** Despite some intriguing differences in the responses of the three groups of judges, there were also some impressive similarities. There seemed to be a tendency, for example, for most children to prefer variety to sameness. Rejecting one sculpture because "it's a bit too plain," a visually impaired child explained that she liked another one because "it's more interesting—things to climb, like an obstacle course, more variety." Or, as one judge said of a favorite, "It's made out of not all flat material. Some of it is rounded and some is flat . . . Here's some of one kind and some of the other kind." A sighted girl explained her choice in similar terms.

A similar consensus among judges of all three groups was a preference for what looked and/or felt orderly and planned. A blind girl rejected one sculpture saying "I don't like it. It's just strange. It feels like somebody just took it and stuck things all on top of each other . . . It doesn't have any shape." Children from all three groups preferred sculptures which had a sense of organization from which they sometimes inferred some thought on the part of the maker: "I like the way it looks . . . It looks like somebody planned how it was going to look." While this latter comment was by a sighted child, it was a partially sighted one who said, "I like the way they put it together," and a blind girl who stated, "I like orderly sculptures."

### Reasons for Liking

Most often the children in all three groups were able to feel quite decisive and certain about their choices. But it was difficult for all of them to articulate the reasons for their selections; the usual initial response was "I don't know," usually followed by a general statement, such as "I just like the way it looks." The children were usually certain about their choices, but not their reasons. As one said, "I knew right away . . . but I still don't know why."

The children's individual style of responding varied considerably with no clear group differences. Some individuals spent most of the time simply describing what they saw and/or felt, while others launched almost immediately into explorations of meanings, associations, and ideas stimulated by the sculpture. Most of the children commented freely in individual ways which tended to be either descriptive or associative.

Figure 1. A blind child examining a sculpture.





**DIFFERENCES AMONG GROUPS** One difference among the groups was the frequent need of the blind (and to a lesser extent, the partially sighted) youngsters to find out what a sculpture was "meant" to represent. Whether or not a real object had been indeed intended by the maker, the assumption that the sculpture was representational was most often made by a visually impaired judge. It was as if there was a need to label the object; the attempt at identification often being associated with some degree of tension, relieved only when the item had been "named." For some, there was a correlation of identification with liking, as suggested in the comments of one of the blind judges about her favorite: "It represents something or seems to look like something. It reminds me of something . . . Anything that reminds me of what it's supposed to be I like a lot." About a sculpture she disliked, however, she said, "I don't know what it is. I can't associate it with anything. It has to remind me of something or someone or something."

### Abstracts

While all three sighted judges commented frequently and appreciatively on abstract elements such as shape, texture, and overall configuration, the visually impaired youngsters rarely did so. As one of the partially sighted children said, "This doesn't remind me of anything. I guess it's what they call abstract . . . I don't know what abstract means. I don't like those kind of sculptures." In contrast, the sighted judges not only understood the concept of abstraction, but were able to take pleasure in an interesting configuration without any realistic implications: "Well, I like the way it looks, more abstract . . . more interesting to look at."



Figure 2. A partially sighted child examining a sculpture.

In addition to the lack of interest in abstraction among the visually impaired children, there was a similar paucity of fantasy associations. These were frequent and extensive among the sighted judges, who usually followed their verbal appreciation of abstract elements with spontaneous expressions of a fantastic or pretend identity for the sculpture. A blind girl who was the outstanding exception among the 12 judges at the school, wishfully imagined one sculpture to be "a far out machine on which you could live, travel, climb, and even watch people."

### Structural Elements

While the visually impaired youngsters showed little aesthetic interest in abstract elements, many of their associative and descriptive responses were stimulated by structural features. Those to which they reacted most intensely and consistently were enclosures, holes, and projections. Sculptures which had clear and consistent enclosures or boundaries around them (usually on a cardboard base) were of great interest to both partially sighted and blind children. The borders, often defined as "fences," seemed especially appealing to the partially sighted youngsters, no doubt because they imposed some visual unity on an otherwise confusing sculpture. For the blind children, it was first necessary to literally "feel their way around" the total configuration, in order to be free to imagine what it might represent. After identifying a sculpture as a "city," a blind boy explained, "I have to take each individual part of it." Feeling one small configuration inside the enclosure at a time, he proceeded to identify them: "I guess maybe this could be a school, and this a church, and this a lamp post."

Openings or holes were usually responded to strongly, with much manual as well as verbal exploration by the visually impaired children. Going in and out of the openings with the hands stimulated ideas of something that led somewhere, such as roads or tunnels. If the opening was fairly well contained or bounded, holes often evoked associations suggesting ideas of security and comfort, "I think this is a barn. This must be a loft where it's soft and you could sleep. And here's some hay, and there's a window, and it's pretty there."

Projections, on the other hand, tended to evoke mostly negative responses from the visually impaired children. For example, one liked a sculpture "very much, but not the sticking-out part." Several blind youngsters explained the selection of their least liked product on this basis, "It's all hanging off the paper," or "It's all screwed up and messy. I just didn't like this with all the things that stuck out of it."

The sighted children, by contrast, often responded positively to the projections as being "interesting." Although they did not comment on the holes during their initial inspection of the sculptures, when blindfolded they reacted quite differently. "You can go on for hours exploring the spaces, the bumps, the shapes. Just going in, finding little tunnels through everything."

**OBJECTIVITY AND SUBJECTIVITY** While the sighted judges tended to be fairly "objective" in their responses, the visually impaired children tended to be more "subjective" throughout. Those with little or no vision most often made identifications or had associations related to themselves and their own life experiences, "This reminds me of my dog's box. His name is Duke. He's a really nice dog." Or, "It reminds me of our wooden steps, they have a space in between them when you go up, and





**Figure 3. A sighted child with a blindfold examining two sculptures.**

this has a space between this block.” A partially sighted teenager chose her favorite because it reminded her of herself, “This one is more interesting. It has a real slant, and I like it because it sort of depicts my personality. It’s weird. It’s real jutty and different. It sort of represents something in my life. I don’t know what. Maybe it’s part of my personality or something—it’s not my whole personality—that’d be too big and clumsy and jutty—out every which way.” Her ability to think and relate on an abstract level was a rare exception among the visually impaired youngsters, but the subjectivity of her response was most common in that population.

While the quantitative findings were suggestive of support for the hypotheses of an equally intense but different aesthetic for the blind, the qualitative results reported so far seem relevant to the possible sources and nature of different aesthetic responses. These differences were surprisingly consistent, and were reflected in the reactions to one object presented to all judges—the “Hobby Horse.” Interest was shown by all of the children in the sculpture, with a striking need on the part of the visually impaired to identify the object as “something.” The blind judges, unlike both sighted and partially sighted peers, responded strongly to the instability of the sculpture, reacting with apparent anxiety. This was reflected in the comment of one girl that it was “too clumsy,” and that she didn’t like it because it “falls down.” Another said she liked it, but would like it better “if this were off . . . it would sit tighter . . . it would sit still.”

**PERVASIVE INFLUENCE** This concern with stability or safety was one reflected in numerous responses of the children with no useful vision, an issue no doubt so pervasive for them that it influences their response to any

stimulus, including an aesthetic one. A girl feeling one sculpture was reminded of “a bridge crossing the road. I’d like it if it was level. I like bridges as long as I’m not going over them.” When asked if bridges were scary, she said, “The ones over water are, because they shake.” Similarly, another called one piece a “baby cradle . . . with this to stop it when it rolls back too far.” Her concern with stability was also reflected in her response to another sculpture, which she said “could be something to help people glide, not get bumped so hard or something . . . like if they were going too fast.”

Still another preferred one sculpture to another “because it won’t get knocked over as easy as this one. Things make me nervous that can fall over easily.” When the interviewer wondered if that had anything to do with being blind and sometimes having accidents, she replied angrily and defensively: “Most blind people are more careful than sighted people!”

The loss of a body function is indeed traumatic, and may have contributed a strong negative response when a blind girl identified a “broken off” part of a sculpture. Grimacing, she declared, “It just feels like a place where a tooth came out. How disgusting!” Acute sensitivity to such tactile “clues” was apparent in the blind judges, as was a greater alertness to sound and to smell. One not only said she could “smell a tape recorder,” but also responded with an olfactory association when a sculpture reminded her of a diesel truck: “I don’t like them . . . because they’re smelly and nasty.”

Perhaps because such tasks are difficult for them, the blind children tended more often than the others to admire the skill of the artist. A girl, for example, said she liked one sculpture “because it’s very hard to get these blocks to stay on here like that.”

### **Tactual Exploration**

A final qualitative difference between judge groups was the way in which the blind children tactually explored the sculptures, with a kind of “free-floating” light surface touch, attending first delicately to the whole, then the component parts. As noted in an article on an art exhibit for the blind, “there’s a big difference between the way blind and sighted people touch things . . . The hands of the blind come down gently and slowly, like butterflies, while sighted people plunk their hands on to an object and rub it” (*Time*, 1970, p. 62). The sighted children, even when blindfolded, tended to behave more aggressively with their hands than either of the other two groups. Among the partially sighted, there was variation from those who behaved as if blind, not using what vision they had, to those who strained to utilize all available vision along with touch in order to fully apprehend an object.

**INTENSITY OF EXPERIENCE** It would seem that support was given in this pilot study to the notion that the blind respond as intensely as those who see a little or a lot, but that their response is in some ways qualitatively different. Stewart found that higher aesthetic ratings in his study were obtained from the sighted judges who both saw and touched the sculpture (than from blind or sighted judges only looking or touching blindfolded). He concluded that “sculpture should be felt as well as looked at” (1968, p. 186). While this condition might be the ideal one, neither the observer nor myself had any feeling that the sighted or partially sighted children had a more intense or meaningful





**Figure 4. A sighted child without blindfold looking at art work.**

aesthetic experience than did the totally blind youngsters. Indeed, there may have been more enthusiasm and interest on the part of the latter, though we did not, like Stewart, ask judges to rate the items on any kind of evaluative scale.

**DECISIVENESS** The enthusiasm and interest of all visually impaired youngsters was impressive, as was the degree of certainty on the part of all judges about their choices. This in itself suggests that some kind of internal feeling of "rightness" or "correctness" was operative, enabling the individual to make a clear and secure judgment, even with the large variety and number of stimuli. It was precisely this kind of certainty by blind makers of sculpture in the creative process which initially stimulated this study.

One can agree with the notion of Révész that a blind person does not have the same kind of aesthetic experience as a sighted individual, but think it presumptuous to characterize it as "non-aesthetic" (1950, p. 202). Von Fieandt's assertion that congenitally blind artists produce clumsy work (1959, p. 210) is equally open to question, since it would seem that such a conclusion depends on who is doing the judging. It is instructive to note that the blind judges tended to choose work by other blind artists as their favorites out of a large array of stimuli, two-thirds of which were created by sighted or partially sighted children. In fact, a chi-square analysis of the frequency of choices of a blind artist's work as favorite by the blind judges (vs. choice of sighted or partially sighted work by sighted or partially sighted judges) is significant at an impressive level ( $p < .05$ ). This suggests that what feels good to one person (the blind artist) might feel equally good to another (the blind judge) with a similar aesthetic; although it may not look good to someone with a more visual aesthetic.

**CONSISTENT RESPONSES** Some of the particular responses of the blind judges were consistent with those reported elsewhere. Stanford at the Mary Duke Biddle Gallery for the Blind felt that "the blind were generally confused by abstract art" (1966, p. 21) and indeed "as a rule [do] not like abstract art unless there is some frame of reference to a realistic subject" (Stanford, 1968, p. 2). Révész also found that blindfolded sighted adults had a need, as did the blind judges, to identify and make sense out of the stimuli with which they were presented.

Regarding specific preferences, one of Kerman's blind subjects responded that he preferred one item to another "because it's not as plain," and liked another one "because it's got more detail to it than this plain one does" (1958, p. 52). These blind children also seemed to prefer variety to sameness, but that was true for the youngsters in all judge groups.

In Stewart's study using his own abstract sculptures, he found that blind judges tended to rate hole and non-hole objects about the same, while the sighted judges tended to rate objects with holes higher than those without (1968, p. 185). While our blind judges showed a noticeable spontaneous interest in and exploration of holes, when asked to choose the preferred item in the second paired comparison, they strongly decided in favor of the sculpture with no openings. Similarly, the sighted children preferred the more solid object when blindfolded, but shifted to the one with openings when their eyes were open.

**ASSOCIATIVE RESPONSES** These observations suggest that we are not dealing with a lack of an aesthetic sense in the blind, but rather a different aesthetic; one which may be influenced as much by associative responses to shape,



form, structure, and stability which relate to the individual's life experiences as by any "objective" indices of formal beauty. That such personality considerations enter into the aesthetic preferences of the sighted as well is unquestionable, and indeed is the basis for such a personality inventory as the Welsh Figure Preference Test (Welsh, 1959). It would seem reasonable to assume that interest in such structural aspects as holes or boundaries, projections or stability, would be related to the blind child's experience of his own body, its vulnerability, and his need for protection in space. There were certainly individual differences within the judge groups, and I would concur with Cutsforth that "as wide a range of individual difference occurs in the affective values of tactual qualities as exists in the affective values of colors" (1951, p. 184).

It is in these individual differences that distinctions between people may be found, for they probably represent idiosyncratic ways of dealing with experiences. One implication of this study, then, is the potential usefulness of tactual stimuli for projective testing, as exemplified in the Twitchell-Allen Three-Dimensional Personality Test (Fein, 1960; Twitchell-Allen, 1958) and the Kerman Cypress Knees Technic (Kerman, 1958). Lending support to the viability of this notion are the relatively large number of subjective associations by the visually impaired judges, especially those relating to their handicapping condition.

**ATTITUDE AND PERCEPTION MODIFICATION** A second implication is to suggest a modification in attitude and perception on the part of those sighted individuals who teach or present art to blind children. In a study by Cutsforth some years ago, 26 congenitally blind children responded to a series of stimulus words with almost one-half of their responses relating to vision, and only about one-third relating to touch (1951, pp. 65-69). One hopes that the same results would not occur today, yet I believe it is still true that in many cases, "the blind undervalue their own true aesthetic experiences and rehearse the empty visual shucks to their utmost ability" (Cutsforth, 1951, p. 180). What is first necessary is to acknowledge that:

Seeing individuals, regardless of how familiar they are with the blind, never fail in some degree to project their own visual meanings on to the tactual perceptions of the blind. The seeing teacher never fails to assume that the blind pupil is perceiving the same form with his fingers that she is seeing. It is impossible for her to conceive that even the simplest geometric forms and simple spatial extents are both qualitatively and quantitatively different from her own perceptions (Cutsforth, 1951, p. 174).

An art teacher recently described the expansion of her own and her pupils' awareness as they worked on covers for braille books, explaining how they had to discover "the logic of touch" (Olson, 1975). Once this different logic has been recognized by the seeing adult, an art program can be developed which respects the validity and integrity of the aesthetic experience of the blind child. In conclusion, Cutsforth's statements in this regard, though made a quarter of a century ago, are equally apt:

It is impossible to proceed with the naive assumption that, aside from the absence of visual perceptions, the aesthetic development of the blind is identical with that of the seeing. Neither is it possible to work out any perceptual analogy

between the hand and the eye. The study must be undertaken on the assumption that the blind are living in an entirely different aesthetic environment from that in which the normal child lives, and only on this assumption can a valid consideration of their growth be based (1951, p. 166). ■

The art work and the judging by blind and partially sighted students took place at the Western Pennsylvania School for Blind Children, with the support and assistance of Janet Klineman, Ph.D., educational director of the Lower School. The design of the study was conceptualized in consultation with Jack Matthews, Ph.D., chairman of the Department of Speech and Theatre Arts at the University of Pittsburgh. Volunteers were students in the Upper School of the Western Pennsylvania School for Blind Children, and their participation was made possible through the cooperation of Robert Hughes, Associate Administrator, and Donald Wonderling, Ed.D., then educational director of the Upper School. The observer for the study was Betsy Small, then in the graduate program in Communications Research at the University of Pittsburgh.

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# Distance Low Vision Aids for Primary Level School Children

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The school-age child's most functionally demanding environment is the classroom. And if, as some philosophers claim, man is the product of his environment, then the kind of environment the classroom provides for the visually impaired child will greatly influence his performance both in school and outside of it.

Does the visually impaired child belong in a regular classroom at all is the question that must first be answered. And the answer is that some children do belong, and some do not. The crucial factor is whether the visually impaired child can adequately compete with his fully sighted peers. Low vision evaluation has, therefore, two functions: 1) to identify the child who can take advantage of low vision aids to remain competitive; 2) to provide the appropriate low vision aids and instruction.

Experience has shown that the most significant need of the visually impaired child in the 5-13 years age group is more efficient use of distant vision. At first this appears mistaken, as there is probably only limited use of the blackboard, especially at lower grade levels. However, we must consider the young child's involvement in additional activities, such as field trips and play. There are four important reasons for giving distance priority over near at this age: 1) The amplitude of accommodation of the young child's eyes gives a built-in magnification system that helps to compensate for near deficiency. 2) The size of print encountered at lower grade levels is larger than standard print. 3) There are few visually demanding homework assignments. 4) Required reading is of limited duration. We must stress, however, that many of the above factors are relative, depending on the specific grade level in question.

To understand a child, we must confront the forces that motivate him, not the least of which is peer influence. This influence may be positive or negative. When positive, peer influence may motivate the child to aspire to higher status, both academic and social. Negative peer influence may cause an insidious decline in the child's normal function, and in extremes may render him totally unable to cope with the life style of his environment. The overwhelming consequences of peer influence cannot be ignored, and to do so is to undermine the effectiveness of any treatment. The effects can be devastating and outstrip even parental and teacher influence.

**POTENTIAL CLASSROOM PROBLEMS** At ages 5-13 years, the classroom must be considered the child's most visually demanding environment, and initial and successful utilization of low vision aids must logically occur here. But the classroom presents a host of potential problem areas which must be recognized and resolved. Unfortunately peer influence at this age level is sometimes most difficult to handle, and we must make every effort to neutralize any factors that we can readily influence. The most important are given in Table 1.

High in the ranking of potential problems is the appropriateness of the prescription—or of not prescribing. When its effectiveness is not apparent to the child, the prescription of a low vision aid, even if functional, may show as poor judgment as does prescription of the wrong or inappropriate aid. The adverse effects are multiplied when the child is forced by teacher or parent to use the aid under these circumstances. Again, we fall back on the low vision evaluation that will furnish pertinent information as to when the low vision aid should be introduced. A typical example illustrating the complexity would be the child with

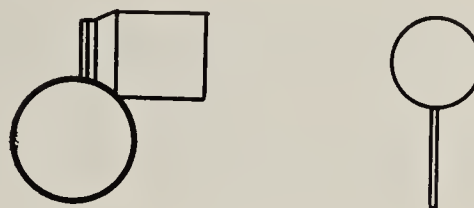
**Abstract:** *The prescription of Distance Low Vision Aids (LVA) for children aged 5-13 years, can greatly improve their achievement both academically and socially. For LVAs may give the child increased proficiency in: board work, demonstration observation, viewing movies and slides, field trips, map reading, activities with peers, and orientation and mobility. However, satisfactory use of the aids requires an understanding of the ever changing classroom environment and needs close cooperation between the teacher and doctor prescribing the LVA.*

**Table 1. Factors that may influence the classroom environment.**

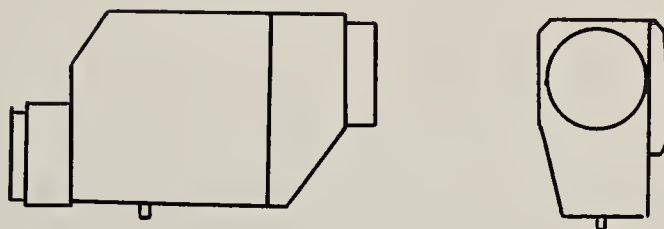
- A) Appropriate low vision and prescription
- B) Low vision aid down-time (wearing-in-a-drawer syndrome)
- C) Environmental effectiveness (or "task specificness")
- D) Low vision aid instruction
- E) Motivation
- F) Teacher support
- G) Follow-up (class by class, etc.)
- H) Physical environmental complications: Seating, illumination, blackboard/greenboard location, windows, auditory distractions, smudged textbooks, mimeographed material, incorrect writing aids, class size, obstacles to line of sight, desk height, computer test sheets, overhead projectors, maps (wall type).

## High Magnifications

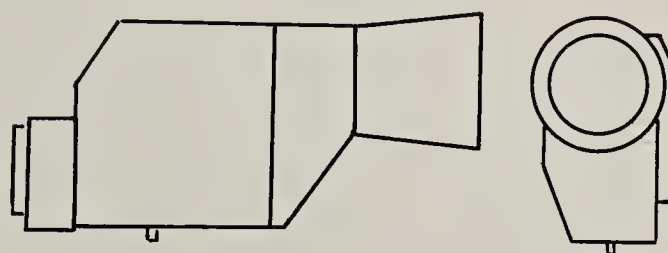
Where higher magnifications are required, the most applicable telescopic system is the 6x monocular which increases to 8x by changing the objective lens. This device also possesses relatively good optics with good field (11 degrees at 6x 18) while still remaining small and easily held in the hand of a child (Figs. 2 and 3). A smaller model (6x 15) is available but suffers from an inevitable reduction in field of view (Fig. 4). Another LVA widely accepted for



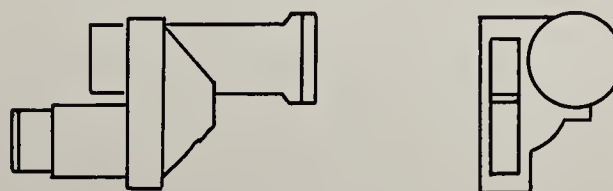
**Figure 1. Ring Telescope**



**Figure 2. 6x Telescope**



**Figure 3. 8x Telescope**



**Figure 4. 6x Telescope**

a stable diagnosis and vision of 20/60. This child would show an increase in vision at distance and near (board work and reading) using a low vision aid. The need for a low vision aid, however, is functionally age/task determined in this case. If he is in Grade I there will be little need for a distance aid for board work, which will be minimal and could probably be handled by proper seating. The need for an LVA in orientation and mobility would likewise be minimal, while for class trips and field trips an aid might well prove beneficial. He would be even less likely to benefit from a reading aid at an early grade level for two reasons: 1) The print (limited) he comes into contact with would be of approximately 10 pound size, which he could readily see. 2) Because of the high amplitude of accommodation which a child at this age possesses, he could utilize this without detrimental effect.

It is equally important to know *when* the low vision aid will be needed. And since the classroom is an ever changing environment the need for an early low vision evaluation (even if no low vision aid is prescribed at the time) and follow-up is obvious. It should be kept in mind that the change in grade each year, or change in classroom during the year, creates a new environment potentially different from the previous one. This may negate the use of previously prescribed low vision aids, initiate the need for one, or make minor or extensive modifications necessary. The variables creating this environmental change are essentially those given in Table 1 under "physical environmental complications."

Eventually we have to ask, "Which low vision aids are applicable to the classroom?" Experience has taught that while any low vision aid can be used in the classroom, some have characteristics that make them more appropriate or preferred. The ring telescope, for example, has been used successfully in the classroom in some eighty cases that I have seen in the United States and abroad. This LVA is essentially a miniature telescopic system mounted on a ring that is worn on the child's finger. The ring telescope combines good optics with unobtrusiveness, especially if worn on the inside of the hand with the hand positioned as if to hold up the head (Fig. 1). This system is applicable in cases where a magnification range of 2.5 - 3x is required. The focusable version also has the advantage of being capable of focusing from infinity (optical) to approximately nine inches without additional modification.



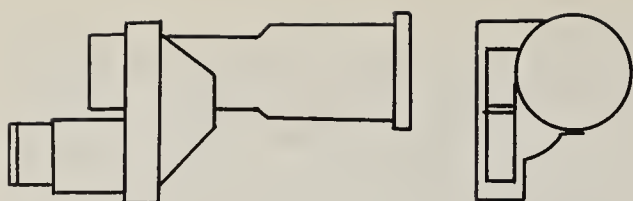


Figure 5. 10x Telescope

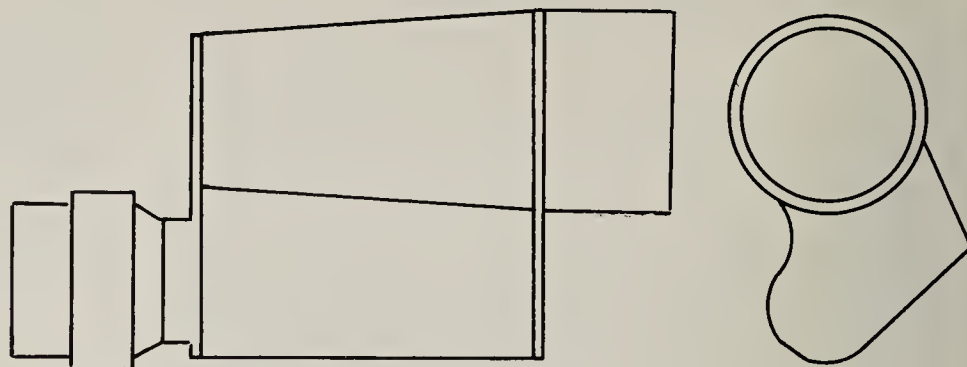


Figure 7. 6x Telescope



Figure 6. 2.8x Telescope

classroom use is a 2.8x telescope which can be hand-held or clipped to the child's distance glasses (Fig. 6). Though it is less cosmetically acceptable when clipped to the eye glasses, it does weigh less than telescopes of similar size and power. The somewhat more complex miniature telescopes mounted in distance glasses must also be considered as LVAs that may be utilized in a classroom, although their greatest asset lies in the area of mobility and higher grade levels, especially college. If a greater field of view is required at 6x magnification we must trade off something for it and in this case the compromise is size: The 6x 30 monocular telescope (Fig. 7) measures 12 cm x 6.5 cm (4¾" x 2½"). Many of the above systems can be utilized binocularly as well. A 10x telescopic system is also utilized in the classroom, although far less frequently because it has a severely restricted field of view and is difficult to hold in the hand (Fig. 5). Many of the situations requiring telescope utilization in the classroom call for special design features and modifications for the specific patient. High power telescopes, for example, must be mounted on the desk and vibrations avoided.

#### Closed Circuit Television

An even more complex method of achieving visual acuity at a distance is a closed circuit television (CCTV) system in which a television camera is directed toward the blackboard or demonstration table while the child views the procedure at his desk by observation of a television monitor (similar to the common home television set). Use of this system allows for increase in magnification and enhancement of contrast. Although the CCTV is primarily used as a reading aid today, I currently have patients using this method in the classroom as a distance aid. Again, the

low vision evaluation will give pertinent information as to the CCTV's feasibility.

**TEACHER/DOCTOR COORDINATING FORM EXCHANGE** The classroom teacher and special education teacher, where available, must be enlisted as part of the rehabilitation effort in order to work successfully with the visually impaired child. Considering the classroom as the child's most visually demanding environment, the importance of those working closely with the child becomes obvious. Along with this it is axiomatic that a line of communication must be established with these educators and also maintained. In recognizing this need I have been using a Teacher/Doctor Coordinating Form. This form has two parts: Part I is filled out by the examining doctor and succinctly conveys information concerning vision—how, where, when and why use the LVA already given the child to try in the actual classroom. There is also a diagram of the aid and a brief explanation. This is sent to the teacher(s) along with Part II. Part II is designed to convey information in concise form back to the doctor from the child's teacher(s) which will assist in the follow-up examination and final prescription of low vision aids.

The Teacher/Doctor Coordinating Forms were designed with input from all the professions that deal with the visually impaired child. The current form was condensed from a six-page prototype, and is constantly being revised. It takes approximately ten minutes to complete, and becomes part of the child's file at the school, where it is available for subsequent teachers as well as a substitute teacher when needed. It is also filed in the child's clinical record to give the doctor up to date information on function in the environment of use.

Each time an LVA is prescribed or loaned, a Teacher/Doctor Coordinating Form should accompany or precede the LVA's arrival in the classroom. The passage and implementation in September 1974 of Massachusetts House Bill 766 requires that a constant and efficient communications system be maintained between all concerned with the school age visually impaired child. The Bill concerned the handicapped child of school age (3 to 22) and his mode of education. Under this Bill the individual school systems are required to integrate the handicapped child into a "regular" classroom wherever possible. While the Bill covers many special needs, this article concerns only the visual aspects, and it is hoped the Teacher/Doctor Coordinating Form will help in the successful implementation of the complex Bill.

### Summary

The complex subject of the visually impaired child and his relation to the classroom, while initially appearing laden with paradoxes can be simplified somewhat by segregating three components, none of which is simple in its own right: 1) distant, 2) intermediate, and 3) near point needs. This paper concentrates on the area this author feels has been greatly neglected: distant low vision aids available to the partially sighted child. At elementary grade levels, while intermediate needs are obvious, the need and

significance of stressing low vision aids for distance rather than aids for near vision has been ignored by the literature.

Low vision aid utilization by the visually impaired child can enhance his functioning at distant tasks, so providing him with: increased proficiency in boardwork, demonstration observation, viewing movies and slides, field trips, map reading, activities with peers, orientation and mobility.

The distance low vision aid, while affording the child increased independence through proficiency in the above tasks is also flexible enough to be used for intermediate and near tasks when properly modified. ■

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## Braille Read-Out for Electronic Calculators and Voltmeters

A tactile numerical display system with a braille read-out has been developed by the Swedish firm, Telub AB, Vaxjo. Two versions of the system are available. Digitac 51, shown here, has a five-digit display. It is designed to be used with digital voltmeters and counters. It is particularly

useful for industrial inspection work. Digitac 51 can be connected to a position transducer and can then be used by a visually handicapped person for measurements on mechanical details.

The second version, Digitac 121, has a 12-digit display and is designed to be used with electronic calculators. This system indicates sign and memory content and emits an audible alarm at overflow.





# Effectiveness of Calculator Instructional Materials: A Pilot Study

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**Abstract:** *An informal pilot study was run to assess the appropriateness of existing instructional materials for three calculators designed for use by blind and visually handicapped persons. Fifteen subjects ages 15 to 21 from two schools for the blind in New York City were involved in the study. In the short time available to them the students were able to use the existing cassette manuals to learn the use of the three different calculators. A number of questions arose concerning the nature of the learning method and gave rise to some suggestions for future development of training materials.*

Math education is presently undergoing significant change as ways are being sought to reduce the time and energy students must expend on computational processes. Math educators are stressing the importance of conceptual development, and the ability to apply a concept to the solution of a particular problem. It is felt that many youngsters are not able to complete the cycle from a general concept to specific problem solution because they become overburdened with the computational process involved. The portable calculator eases the process and serves as an important tool in increasing student math productivity and efficiency.

A blind or visually handicapped student can become overwhelmed by problems of computation, and, therefore, several types of calculators for the blind are now on the market. At the annual meeting of the American Printing House for the Blind in November, 1975, the Speech Plus Calculator manufactured by Telesensory Systems, Inc., was presented. Participants at the APH meeting included state vision consultants, directors of special education, superintendents of residential schools for blind and visually handicapped students, and university personnel involved in teacher training programs.

There was widespread support for the calculator as an educational tool, but serious concern was expressed about the lack of curricular materials. Several persons, particularly those from the field of teacher education, felt that such materials were important if the calculator were to be as effective as possible.

At the time of the APH meeting, calculators sent either to blind users or to schools were accompanied by cassette-taped manuals provided by the manufacturers. These manuals were the only source through which users could familiarize themselves with the various braille and talking calculators.

**MANUAL EVALUATION** No information was available on the effectiveness of these manuals as instructional materials. Before the need for new materials could be determined, a logical step was to attempt an evaluation of the existing manufacturer-provided aids as learning tools. Consequently, the American Foundation for the Blind determined that an informal pilot study might provide useful information relative to the appropriateness of the instructional materials available for several calculators designed for use by blind and visually handicapped persons. It should be emphasized that the study was an attempt to evaluate the effectiveness of the manuals only, and not the design or function of the machines themselves.

The pilot study was informal in nature, and the number of students participating was far too small to provide a statistically valid sample. The kinds of responses elicited by the questionnaire also were not amenable to statistical treatment and interpretation. Moreover, time limitations on the project (calculators were placed in each school for only two weeks) prevented any evaluation of the student's ability to transfer learning from the material contained in the manuals to that contained in their ongoing math curriculum. In the two-week period, the time spent on each calculator and accompanying manual was determined by participating teachers. Necessary limitations in method and scope of the study should be given adequate weight in evaluating and interpreting the data presented.

## The Students

Fifteen students between the ages of 15 and 21 were



involved in the study (mean age 17½). The grade range was from eighth through twelfth. Upper-grade students only were used. The National Council of Teachers of Mathematics contends that calculators should not be used before the fourth grade, and that before students use calculators, they should have a firm grasp of numerical concepts, and some basic level of computational skill.

Six of the students attended the New York Institute for the Education of the Blind and nine attended the Lavelle School for the Blind. Twelve of the 15 students were totally blind and three had light perception; ten were congenitally blind and five were adventitiously blind. There were two 15-year-olds, one 16-year-old, five 17-year-olds, four 18-year-olds, one 19-year-old, one 20-year-old and one 21-year-old. Grade distribution included two eighth graders, two ninth graders, one tenth grader, three eleventh graders, and seven twelfth graders. Ten students were male and five female. Only ten of this population were presently enrolled in math courses: two in eighth-grade math, two in ninth-grade math and algebra, one in pre-algebra, one in geometry and refresher math, two in refresher math and two in eleventh year math.

**THREE CALCULATORS** The purpose of the study was to evaluate three instructional manuals for three calculators: the TSI Speech Plus, the Master Specialty Audio Response, and the AFB Braille calculator. In each case, the manuals were issued by the manufacturer and presented on cassette tapes.

**TWO SCHOOLS** The study was conducted over a four-week period at two schools in the New York City area: a residential school, the New York Institute for the Education of the Blind, and a parochial day school, the Lavelle School for the Blind.

Each school had the three calculators and their manuals for two weeks during which time students used the manuals to attempt to master the use of the calculators. At the end of the time, the students and the teacher in charge of the project filled out a questionnaire, available in both braille and ink print, that addressed itself specifically to various aspects of the instructional materials.

Three calculators were at the Lavelle School from February 23 to March 5, 1976. During that time, each of the nine student participants in the study spent a total of six hours working with the machines, divided equally into two hours per machine. During the first week, students spent one hour with each machine with the objective of mastering the machine itself through use of the instructional manual. During the second week, students attempted to compute problems from a seventh grade mathematics text, referring to the manuals only when a question arose about the performance of a specific function.

At the New York Institute, students spent a total of eight hours each, divided equally among the three machines. However, in this case no time was given to work on outside examples. All available hours were spent with the accompanying manuals.

### Questionnaires

At the conclusion of the testing period, teachers and students in both schools discussed the questionnaire in depth. The teachers completed the questionnaires incorporating the students' thoughts and attitudes into their responses. Each school filled out one questionnaire, so that it was the teacher's responsibility to record what he or she believed to be the composite opinion of the group.

The responses of both schools to the questionnaires have been integrated and are presented in Table 1 for comparison. On general comment, the importance of cassette indexing stressed. Also, in all cases, too much time was spent on introductory, sometimes technical, material. Cassettes should be set up so that students can become actively involved much earlier.

### Summary and Discussion

Both groups responding to the questions agreed in several important areas:

1. More practice materials, fingering exercises, and actual problems to be computed were needed.
2. Slower reader delivery would have been helpful.
3. Vocabulary was thought to be at too high a level for easy comprehension and assimilation.
4. They would have liked instructions in braille, though cassettes were the preferred mode for fingering practice materials.
5. A system of indexing was needed that would facilitate location of specific information.
6. Units of instruction should be shorter.

The data clearly indicate that even in the short time available to them, students were able to use the cassette manuals to learn the use of three different calculators. A more specific method of instruction is needed to enable the user to master the calculators quickly and as efficiently as possible.

The nature of that method and how it ought to be developed must be carefully considered. For example, is it possible to develop a body of practice materials applicable to all calculators used by the blind and visually handicapped students? Or, must the practice materials be specific to a particular calculator? Should practice material be teacher prepared or should standard "drill books" be provided? Must special practice materials be developed specifically for use with visually handicapped students or is it more appropriate simply to adapt materials already provided for sighted students?

### Decisions Needed

Much needs to be decided concerning the level of instructional materials. Data from the pilot study indicated that students found the existing manuals to be at too high a level of comprehension. Should manufacturers develop instructional materials to be used only as guides by teachers, or should the manuals be such that they can be used independently by students? Should instructional materials be developed by manufacturers or educators?

These and other related issues were raised at an AFB meeting of manufacturers, teacher-educators, and teachers of the visually handicapped for the purpose of sharing the results of the pilot study and to obtain direction on development of materials. Manufacturers' representatives made the point that they viewed the cassettes that accompanied their machines as owners' manuals and not as instructional material for use in the classroom. Strong desire was expressed for added input from classroom teachers to identify the kinds of problems to which new materials would have to be tailored. Participants suggested, for example, that the best kind of "practice material" might be drawn directly from the student's math text book. They felt that once a student had achieved a basic familiarity with the machine, practice should be incorporated into their regular work in mathematics.



The calculator, for both sighted and blind students, is only beginning to be used in classrooms. There is a dearth of material available for use with either group. As materials begin to appear it may be that some will be adaptable for use by blind and visually handicapped students. Teachers and teacher-educators, however, must come to grips with the perplexing issue of adaptation versus development. Are the needs of visually handicapped students so qualitatively different from those of their sighted peers as to warrant the development of separate materials? This question is basic and some agreement must be reached if future development is to proceed in a valid direction.

**TEACHER INPUT** Although this study is an important first step, more field observation and far more teacher input is needed in order to resolve these issues: For whom is the calculator best suited, that is, at which grade level should it be introduced; what is the best method for teaching the use of the calculator; what is the most appropriate type of material to aid in this process?

The potential benefits of the calculator to visually handicapped persons are enormous. It is crucial that educators, manufacturers, and consumers combine their skills and understanding to produce the kind of learning aids that will allow these potential benefits to be realized. ■

**Table 1.**  
**Effectiveness of Instructional Materials for Use with Master Specialty (MS) Speech Plus (TSI) and American Foundation for the Blind (AFB) Calculators.**

	<i>Lavelle</i>	<i>New York Institute</i>
1. Did the Manuals provide clear and adequate orientation to the machine? Would more detail have been helpful, such as a specific method for fingering?		
MS	Tape went too fast on fingering portion. Tape should be more specific, give more time and detail because of number of keys involved.	Yes
TSI	Tape very clear on basic fingering of machine.	Fair. Better organization and detailed description of key fingering would be helpful.
AFB	Completely inadequate as to key fingering. Had to go over tape many times to make sense; many students resorted to own method.	Same as TSI
2. Did factors in the reader's presentation help or hinder student learning—speed, inflection, diction, familiarity with material, pacing.		
MS	Varied opinion on material knowledge, speed, and inflection. Agreed that diction was excellent.	Clarity helpful, speed sufficient.
TSI	Perfect in every aspect.	Clarity helpful, delivery—too fast.
AFB	Diction good. Over-familiar with material—brushing over too fast for student to pick up and do a good job.	Diction excellent, speed too rapid.
3. Was the language on the Manual clear to all students? To what grade level is Manual best suited?		
MS	Language excellent. Grade level high school or above.	Language unclear. Grade level; high school.
TSI	Language excellent. Grade level slightly higher than that on MS.	Language unclear. High School.
AFB	Language too technical. Should concentrate more on teaching with less background information. Grade level above high school.	Language unclear. High school.

4. Were adequate and appropriate examples presented to illustrate and provide practice for each function described?

MS	Examples provided for every function, but presented very quickly and so difficult to follow.	No.
TSI	Examples provided for every function but presented too briefly for student familiarity with machine.	No.
AFB	Same as TSI	No.

5. How effective was the order in which the material was presented? Would a different type or length of instructional unit have been helpful?

MS	Order presented correctly. Units should be shorter. More needed on operation of memory system.	Very good description of the machine and orderly instructions.
TSI	Order and length of units were good.	Instructions seemed scattered after hit and miss introduction to keyboard.
AFB	Introductory technical material could be omitted. Amount of material presented in each unit so great that speed of presentation made understanding very difficult.	Instructions for use orderly. Orientation to keyboard haphazard.

6. How much teacher intervention was required in order for efficient student learning to take place? What kinds of intervention were necessary?

MS	Very little teacher intervention needed; some needed for operation of memory system (key placement).	Intervention necessary for explanation of some vocabulary and key concepts such as automatic constant, reciprocal.
TSI	Very little teacher intervention needed; slight amount on operation of memory system.	Intervention needed for explanation of vocabulary; key concepts such as automatic constant $\underline{x}$ (exchange sign).
AFB	Teacher intervention needed to show placement of keys; explanation from tape inadequate.	Intervention needed for explanation of vocabulary; key concepts such as exchange key, and change sign.

7. What is the optimum student teacher ratio for use of these materials?

MS	5:1	10:1
TSI	5:1	7:1
AFB	3:1	7:1



8. Do you feel that the cassette is the most appropriate mode for presentation of instructional materials? Would it be helpful, for example, if materials were presented in a way that would allow user to look up a procedure for performing a specific function?

MS

Tapes should have been indexed for access to specific section for further instruction. A braille booklet indexed to the various points of instruction should also be provided.

No. Braille instructions needed and preferred. However, cassette taped fingering exercises would be appropriate.

TSI

Same as MS

Same as MS

AFB

Same as MS

Same as MS

9. Were students able to transfer learning from instructional materials to their regular math curricula?

MS

Transfer attempted using materials from seventh and eighth year curricula. Successful except in case of percentages, where there were difficulties.

Yes.

TSI

Some transfer attempted, and was successful.

Yes.

AFB

Machine presented great difficulty to students. Part of problem—functions (plus, minus, etc.) do not appear in braille. Also, since only four of the usual six dots are used, the decimal and overflow features were sometimes confusing.

Yes.

10. Are more instructional materials needed? If so, please be as specific as you can in describing the format and content you believe would be most helpful in developing proficiency in the use of the present calculators.

MS

Supplementary material is definitely needed, specifically, more examples for practice in all calculator functions.

Yes, work sheets of more and varied examples; fingering exercises similar to those for typewriting for efficient learning of keyboard; materials with more in-depth explanation of possibly unfamiliar keys and their uses—constant, change sign, exchange, memory.

TSI

Same as MS

Same as MS

AFB

Same as MS

Same as MS

# Mobility, Orientation, and Navigation: Conceptual and Theoretical Considerations

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**Abstract:** *Analyzes mobility, orientation, and navigation and describes the complex activities and detailed knowledge required by each. Mobility involves movement of an embodied person; orientation involves knowing where one is, in relation to fixed or moving points; navigation is directed movement with an intended destination and requires knowledge of directions and locations.*

This paper undertakes a conceptual clarification and theoretical interpretation of the complex activities included under the headings of mobility, orientation, and navigation with specific reference to the blind person engaged in independent travel. This effort seems warranted because, with the exception of the pioneering work of J. A. Leonard (1964, 1968), Leslie Kaye (1974), and the important research of J. D. Armstrong (1973, 1975), there is little explicit theory in the field that can be used to interpret, systematize, and further advance the practical accomplishments made possible by mobility and orientation instruction.

Virtually all people are proficient in the activities needed for movement, orientation, and navigation. Yet they are not explicitly aware of how they do it, they are not able to tell another person how they do it, and do not even care if anyone else ever analyzes "how it is done." Moreover, even when skilled blind persons do try to explain how they perform these activities, they often give misleading advice and may ascribe to one sense-use what is in fact a function of another. The impression of what is happening may be quite different from what is actually happening. Multiple pickup, in which several senses or sense-uses bring in the same information, may add to the confusion, since which one gets the credit is a matter of preference. (I am grateful to Robert Amendola of the Carroll Center for the Blind for his illuminating comment on blind persons' reports of their experiences.) Exceptions to this are found among those who are concerned with instructing others in these skills—teachers, trainers, peripatologists. However, even they are not necessarily interested in a theoretical analysis since their efforts are practically oriented. They may prefer to develop a better instructional method or set of diagnostic instruments to assess an individual's skill levels, or to produce specific instructional materials to facilitate teaching and learning.

In contrast, the researcher may seek to describe basic procedures and develop concepts which refer to a variety of activities, learnings, and practices, and develop conceptual and theoretical frameworks for integrating the knowledge obtained through systematic research. It is hoped that conceptual and theoretical clarifications will also contribute to the application of principles to practice.

**MOBILITY** The kind of movement I am speaking of is total bodily movement. It is not the "person moving his body" because this would imply that somehow the person is separate from his body and is moving "it" whether this be from outside or inside "it." The person moving is rather an "embodied person," i.e., a person-and-a-body. These cannot be separated, except in words, and we must remember it is the *words* that imply separation and not that the person and his body are separated.

We may use the term "movement" when referring to the movement of parts of the body such as when I raise "my hand" or lift "my leg." Here, the limbs move in relation to the rest of the body but the whole body remains in the same spatial location. However, this is not the kind of "movement" found in walking or running. So we shall have to be more specific. The movement we are interested in is the movement of the "person-and-body" or the "embodied person" (Merleau-Ponty, 1962; Minkowski, 1970; Straus, 1963). In such movement, the embodied person as a whole changes spatial location and can be said to have "moved" from one place to another. Thus, there may be movements within movements, as in the case of parts moving in relation to the whole, while at the same time the whole is moving in relation to features of the spatial environment.



Movement is thus seen to be a matter of change of position of a part or the whole in relation to something which is itself unchanged in spatial location.

The movement we are interested in is not induced, generated, or forced by outside agents, as when one is pushed or pulled (being propelled); it is not the movement produced when one is physically lifted onto a vehicle or structure that transports or carries the embodied person (being transported). In being propelled and being transported one may be standing, sitting, or lying down, but whatever one's position, movement is not under the immediate control of one's own desires and intentions nor of one's own physical capabilities.

Thus, the movement we are interested in when dealing with independent travel by the blind involves the person making his own judgments and decisions about whether and when to move and where to move. The person's own choice is also involved in how embodied movement is to occur, whether walking, crawling, or running; the rate of movement (speed); the pathways on which to travel; and the route to take.

The movement of walking is accomplished in an upright position, on one's own feet, using the muscular-skeletal structure to resist the force of gravity and maintain an upright position. Movement forward, backward, sideways, or turns in any variety of degrees of angles are negotiated while balancing on one's feet. Such movement is generally called "walking," though by varying one's speed one can be characterized as "running" or "nearly crawling."

Thus, *mobility* will refer to *the movement of an embodied person, total bodily movement which involves a change in spatial location, accomplished in an upright position under one's own power*. One has moved or is moving when one has changed or is changing one's spatial location relative to other objects that remain in fixed positions. Moving may be accomplished by anyone with the physical capabilities for standing upright, maintaining balance, and taking one step at a time. But movement is not the same as being oriented as we shall discuss in a moment.

However, some additional considerations must be introduced before proceeding.

**SOCIAL SPACE** The movement I am concerned with occurs in a social world. Social space is peopled, occupied by other persons and the products of their activities, such as buildings, sidewalks, streets, curbs, parks. I live in a dwelling which for me is "home," the place from which I start my day and in which I sleep at night, from which I depart on trips, and to which I return. It is surrounded by "familiar territory," the area in which I move most frequently, which I have come to know in terms of its sights and sounds, its contours and textures, the activities of its people, and the cyclical, rhythmic patterns of their movements and their uses of this space. This area around my "home" I call my "neighborhood" (or my "part of town") and still larger around it is the town or village or city and, larger yet, the region. The borders of these units are not clear to me, but what matters most is that I and others share names for them and for their parts or sub-areas. We "know" what we are referring to when we say we live in Newtonville or Cambridge, in Hampstead or Birmingham, though within these areas we lack place names for our specific neighborhoods. Our personal neighborhoods are organized around us as regions of more personal space, thus "my" neighborhood is different from my neighbor's two blocks away. My particular

"personal neighborhood," at the center of which is my home, is different though it overlaps with "the neighborhood" or "our neighborhood" which I and others may refer to by a standard name. The latter can be located by anyone using a search procedure oriented to the name (e.g., "Where is the Beacon Hill area?") whereas the former can only be discovered through interrogating or following me personally ("What is your neighborhood space as you see it?"). My space is organized by me around myself and is not necessarily coterminous with "the neighborhood" which others know.

My "world" is, then, all of these areas. The part I am concerned with most is that closest to me, the world within my reach, now or restorable in the future. It is the world I can reach out to touch with my hands (or limbs), with my senses as these provide me contact with its features, and at all times with "my mind" (for want of a better term). That is, I interpret what my "senses" contact, I "make sense" of what I see, touch, grasp, hear or smell in my world. I am continually and actively perceiving my world, interpreting what sensory experiences I have. As I do so, I constantly discover things about my world.

Because I am a member of a society, I have learned many things about worlds in general and can apply these to "my world." I have a stock of knowledge about things; I am a socialized member of a society—and of sub-groups within it. I know the language of my society and share many of the concepts and meanings found among the community of persons who share this language. Thus, I may already "know" what a street, sidewalk, curb, driveway, lamp post, intersection, house, and store, are. I may know what up, down, next to, in front of, over, under, around the corner, left and right mean. I may have some knowledge of compass directions, though I may not know how to use these for myself, or how to read a compass.

My knowledge is ever increasing and diminishing (by virtue of losses of memory) and as long as I live in and of this world, I know that this will be so. Of course, persons who lack some physical capabilities or sensory uses, or who have not had certain social and cultural experiences, will have a different knowledge of the social world. Whatever the specific content of their knowledge, they nevertheless know many things about their worlds and are ever able to learn more.

I apply this stock of knowledge to my experiences at hand in order to "decide" what things are, what to do about them, and how to behave in relation to them. So, before I have taken even one step, before I move at all, there is already much that I know and, in addition, much that I know I will come to know. Thus, to propose that mobility, as movement, can be distinguished from orientation knowledge is to propose a theoretical distinction rather than a practical one. However, the distinctions being developed and explored in this article are being made to sharpen and focus the conceptual and theoretical issues. For example, I am not considering "safe" movement, which is a thoroughly practical and important concern, but instead am trying to distinguish between movement and orientation.

**ORIENTATION** To be "oriented" is to know "where I am," to know the relation of my "here" to other places (points) in space. I use fixed points to provide me with my knowledge of "where I am" though I can also use points which themselves move in relation to me. However, I am not oriented if all I can say is that I "know where I am" but am unable to



place my location in relation to any other place. For example, to say "I am in my car," or "I am on the sidewalk," is to be able to name a place in which one happens to be, but does not necessarily mean one knows where this place is in relation to other places. Thus, even to say one is in a named geographical place, "I am in Newton," does not distinguish Newton, Massachusetts from Newton, Scotland.

On an everyday level, orientation involves my knowing "where I am": a) in a named area in relation to other named areas, or b) between named areas. (I leave aside for the moment whether "home" is only one place or whether it is many, e.g., "home" may be wherever I started out from on this particular journey.)

#### Four Types of Orientation

1. It is possible to say I know where I am in relation to other fixed reference points while I myself am stationary, e.g., my address at 6604 Pershing Avenue, St. Louis, Missouri, places me between two houses, across from another house, on a street called Pershing, in relation to other named streets, in a city called St. Louis, in a state called Missouri, in the U.S., in North America, and so on; or one might say, I am in London, which is a city in relation to other cities in England; I am in England, a country, in relation to other countries, and so on; or, I am at a particular latitude and longitude, an imaginary set of lines projected over the surface of the earth running north-south, east-west; or, I am in my study, in my chair, four feet from the east window and six feet from the north window.

To determine my location, I *fix* myself at a point and in time which is the "where I am now," or "me-here-now." I name my place (or position) using conventional and shared meanings for place-names and I refer to a time—in terms of standard time or clock time, a conventional and shared system for noting time.

2. It is possible to be oriented, to know where I am in relation to fixed reference points while I myself am moving. I can say I am "somewhere between" two points. This type of orientation also provides an answer to, "Where am I?" though it appears to be less exact. It is particularly relevant for the mobile person as he is en route to a destination. For example, I am on the sidewalk between the Post Office and W. H. Smith's on Finchley Road, or I am on Commonwealth Avenue somewhere between Boston University and the Boston Common.

In these instances I can locate myself somewhere between two points, and may include in my mention the one toward which I am moving. The ones I have left may "fall away" or recede as I move but they could also be selected. In fact, any two reference points could be named. This type of orientation also requires two reference points whose position is fixed.

It should be noted in passing that as I travel I can describe my journey in terms of a series of points, each described as being between two other points. For example, I am between points 1 and 2, then between points 2 and 3, and finally between points 3 and 4, where 4 is my destination. For example, I am now between the Post Office and the Gulf Station on Washington Street, and two minutes later I am between the Gulf Station and Austin Street. Since I do not describe exactly where I am at the time that I report my location, this form of orientation is relatively imprecise. Perhaps we should refer to it as providing a location "somewhere between."

## ANALYSIS OF CONCEPTS

### MOBILITY

- ▶ movement of an embodied person
- ▶ involving changes in spatial location
- ▶ while in an upright position
- ▶ at a rate generally called "walking."

### ORIENTATION

- ▶ knowing where I am
- ▶ involving either or all:
  - a) orientation to fixed reference points while I am stationary
  - b) orientation to fixed reference points while I am moving
  - c) orientation to moving reference points while I am stationary (orientation to traffic)
  - d) orientation to moving reference points while I am moving (orientation in traffic)

### NAVIGATION

- ▶ directed movement with an intended destination
- ▶ involving knowledge of directions and locations, such as:
  - a) knowledge of relation of the starting point to the destination
  - b) knowledge of relation of the destination to other fixed reference points
  - c) knowledge of location of destination in terms of distance/time
  - d) knowledge of location of destination in terms of route for getting there
- ▶ involves constructing a route by reading and understanding orientation maps or verbal orientation descriptions (where places are)
- ▶ involves reading, understanding, and following directional maps or verbal sets of directions (instructions for how to get there).

3. A third basic type is that of, "I am stationary while others are moving around me." Movements may be undertaken to get out of the way or avoid others whose trajectories will bring them uncomfortably close. This may be referred to as orientation *to* traffic.

Here the problem is to monitor the movements of others so that I know where they are in relation to me. My being stationary poses an obstacle for them to avoid if I am on a pathway, as in the case where I stop on the sidewalk to wait for someone, or on the highway as other cars move by. My first concern may be to get out of the way of others while still keeping track of where *they* are. As I orient myself to others who are moving, my attention is focused on their movement and my stability. For the moment, all fixed points "fade away." Even though I may know where I am, as in the first two types of orientation, in this type I am concerned with knowing where I and others are in order to manage the problems that would be produced if we were to try to occupy the same space at the same time.



This type of orientation may require no movements if I am safely out of others' way. But some movements may be needed if I guess that their projected course will bring them into collision with me. As in Type 4 below, my monitoring of their speed and distance becomes a crucial matter affecting my movement or lack of it. My major orientation problem is to determine whether I am in or out of *their* way.

4. A fourth basic type of orientation is found when I am moving and the points I use to orient myself are also moving. This may be referred to as orientation in traffic, for example, when I am between two pedestrians on a sidewalk or two cars on a highway. My problem here is not only knowing where I am in relation to these other moving points but having to gauge the speed and direction in which each of us is moving. (I assume we are trying to avoid a collision, though we may be planning to meet at some time or place.)

Here the orientation problem is not so much a matter of being able to identify one's exact or relatively exact location, as much as it is a matter of keeping a safe distance, staying on course, or in the traffic lanes, or keeping up with the traffic flow. Others may be moving toward or away from me. When our movements are toward each other and our directions are opposite, or at angles to one another, our concern is to avoid collision and to maintain distance, while monitoring one another's presence so as to accomplish these. The orientation problem is whether we are in or out of each other's way.

#### Place Names Alone Not Adequate

Types 1 and 2 are seen to involve orientation to fixed reference points, which are generally named. In order to be a skilled traveler in any area, it is therefore necessary that I know places and their names, as well as how to identify them so that I can either know a place when I am there, or know it enough to know I am not there. I also want to know enough to be able to say "where I am." Whether it is Soho, Brighton, or Newton; the M1, the A2 or Boots's; the Upstairs at the Downstairs or the Downstairs at the Upstairs, each of these become a "place" when it is named.

But a vocabulary of place names is not enough. I must also have some idea of *what* they refer to. Thus, for those who do not know, the Pru is in Boston, the Arch is in St. Louis, and the Bull Ring is in Birmingham, England. But given the names alone, one still cannot tell what they are, or where they are within the identified city. Their use involves understood but unspoken meanings, the "places" in which they are located and what they consist of (whether they are buildings, public monuments, highway junctions, houses). I may "know all the names" but unless I know *what* they are I cannot identify them when I see them. This can account for the fact that persons seeking travel directions will assume they understand what is meant when a location is named (e.g., Kenmore Square, Harvard Yard, Lindell and Skinker, The Arena) but will be unable to identify it later when they actually arrive at it or pass by it. Knowing the features of a place assumes I can identify those features when I encounter them. (I have elsewhere analyzed the extensive knowledge that cab drivers have of places, which thus enables them to hear radio dispatched orders as understandable and complex messages despite their brevity [Psathas and Henslin, 1967]). But, depending on which features I know, I may be unable to identify the place if my sensory capacities are diminished or the information provided about the place requires the use of senses I do not possess. Thus, for a blind person the shape of the St. Louis Arch does not

assist him in locating it because its shape can only be seen (it is 600 feet high). Its location can be identified for non-sighted travelers by other clues and descriptions but its shape and height, which serve as a landmark for many miles, are features available only to those with sight.

Relevant information about how to identify a place using various and different combinations of senses is not necessarily contained in every description of its features. Descriptions that sighted persons can use predominate in everyday usage, and blind people must learn how to ask for descriptions that they can use.

Although not yet explicitly considered, mobility and orientation have a temporal dimension. An exploration of how and in what manner time is involved would require considerable discussion and analysis that will not be attempted here. Suffice it to say that as I move through space and in time, time flows as I move. I do not magically appear in an instantaneous flash in another place (science fiction notwithstanding). It "takes time" for me to get from one place to another. Even staying in one place, over time (as time passes or flows) means that my "here" contains a temporal dimension. It is where I was *before*, where I am *now*, and where I shall be in the next *moment*. If I move, my present position becomes my past and my future (the one toward which I move) becomes my present. Thus, even standing still involves me with time. But the major concern we normally have with time is when we are moving and can mark the journey with measures of time, as when we say "it's a long way" or "it won't take very long to get there." I shall return to this briefly later.

Among the blind, a person using a guide dog may, for example, be proficient and highly skilled in orientation of Types 3 and 4 (orientation *in* and *to* traffic) described above, but if his knowledge of fixed reference points and how to identify them is deficient, he can navigate only in familiar areas or along familiar routes. Even when being oriented as in Type 2 orientation, "somewhere between," a person may use more limited versions of this type of orientation. One may lack an understanding of how to maintain orientation while traveling along unfamiliar routes or of how to construct a route in relation to particular kinds of landmarks in order to arrive at an unfamiliar destination. Thus, it is important to understand how the use of different types of orientation can enable the traveler to navigate with varying degrees of proficiency.

**NAVIGATION** To navigate is to move with a purpose from one place to another. It is directed movement, that is, with an intended destination. Navigation involves both mobility and orientation. There is a place, a "there," that I wish to arrive at, and I will know when I get there.

Directed movement may be contrasted with "wandering," "drifting," "just driving around," or "just walking," though it is likely that such movement will, when the traveler decides to aim for a particular destination, become directed movement. At some point questions of orientation will emerge, if only when returning "home" becomes an issue; even the "wanderer" becomes a navigator at this point.

Although our main interest here is in navigation, it is important to see that all movement (mobility) does not involve the same kind of orientation. Persons may be skilled in mobility and in being oriented to others defined as obstacles to be avoided on a pathway. Yet persons with these skills may still not know where they are in the neighborhood or city. They may be capable of arriving at their destinations



but not know where they are at particular points along a route in relation to the most recent and next landmarks; they can only say they are “somewhere between” their starting point and their goal.

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## “Descriptions . . . sighted persons can use predominate . . . and blind people must ask for descriptions that they can use.”

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Initially, navigation involves a motivation to move because I wish to be in a place other than the place where I am now. Navigation necessarily involves knowledge of directions as well as locations. I know my present location, if only minimally, as the place I no longer wish to be. But I also must know its relation, spatially, to the place where I want to be in some future time. Thus, knowledge of locations and their relations to other places is what directionality is about. I know that the place to which I intend to go (my destination) is in a certain direction from my present location (*where* it is) or that it can be reached by following a certain route which involves changes in directions from here (*how* to get there). By a certain direction is meant its relation to me, e.g., it is to my left or right; above or below me; in front of or behind me; or, in using compass points, it is to the east or west of me. I may also know its location in relation to other fixed reference points: It is next to someplace else, e.g., to the right or left of X, or in front of or behind X, or above or below X. I also may know its location in terms of distance-time: how far away it is or how long it will take to get there by particular modes of travel under particular circumstances.

Another way to know the location of a destination is by knowing a route for getting there (how to get here). This differs from knowing where it is, though one may have both kinds of knowledge. I may know that to reach my destination I must proceed for so many blocks, cross so many streets, turn left or right at certain places, and so forth, and eventually I will be “there.” But while following this route I may know nothing of what is along the way, not know names of places along the way, and be unable to recognize places that I “know” and have visited even while passing by them. Clearly, knowledge of a route to a destination from a particular starting point can provide solutions to problems of navigation with minimal orientation information and orienting skill on the part of the traveler. One example of this I refer to as “rote travel” where the traveler has learned a route through practice and, with the aid of memory, can follow it unerringly every time. But off the course—even for a short distance—the traveler is “lost,” does not know where he is, and may be unable to return to the course unaided. The traveler who has greater orientation skills and knowledge can follow a route and find it again if he gets off course.

While traveling, knowing when one has arrived or is close to one’s destination is not always easy. It is necessary to be able to perceive and recognize one’s destination—to know what it is and know that it is the place one seeks. Being able to perceive the destination in varying degrees of closeness and remoteness, since it presents itself in many different ways under different conditions, is not always a simple matter—as most travelers can easily confirm when discussing their experiences. One may “pass right by it,” (overshoot it) or “miss it completely,” or, even though familiar with it from one of its many perspectives, one may not be able to

“recognize” it when approaching it from another direction.

Such problems are similar for sighted and non-sighted travelers. I can report on my own (sighted) travel through London on the first day, when I actually went through the intersection of Oxford Street and Regent Street—Oxford Circus—and did not know that it had this name. I did not *identify* it, that is, I did not assign a name to this particular configuration of two streets intersecting, buildings, iron railings at the sidewalk’s edge, subways for pedestrians, underground station, buses with particular numbers going through it. Nor could I *recognize* it in the sense of comparing its appearance with a memory or past knowledge of its configuration. A second and even third trip through Oxford Circus, even after I had learned the name, did not enable me to associate the name with that particular place. But once having made the connection of the name to that place, my subsequent travels could make use of that knowledge. I could use Oxford Circus as a destination or starting point for further travels; I could use it as a landmark to provide orientation “along the way” to other destinations, and I could use it to re-orient myself if I became lost (i.e., I could seek it out in order to “get my bearings” before starting out again on a journey).

**NAVIGATION** Once having learned the names and the **ROUTES** features of particular places that make them **AND MAPS** identifiable in relation to their surroundings, and recognizable in returning to them, the navigator is able to travel and remain oriented. It is possible to know where I am and know where places are in relation to one another. This latter knowledge of the spatial relationships of particular places then makes the construction of routes possible. In order to construct a route for myself or others, in contrast to following a route which someone else has constructed for me, I must be able to name places and have knowledge of their relationships to each other in such matters as their relation to pathways used for travel, space-distance, or time-distance from each other—even if this is only in the crudest form of knowing that one place is reached before or after another. I must also be able to select and describe, at least to myself, those features which make them identifiable (on a first journey) and recognizable (on subsequent journeys). Here one can consider the possibility that places may be identifiable on particular journeys because identifying features are provided that are unique to a particular time and circumstance, e.g., “That place over there with the sun shining and reflecting in its front window,” or “The store with the man ripping up the street in front of it with a jackhammer.” Such specific features may not be of assistance on subsequent journeys.

Constructing a route in advance of a particular journey or constructing a route as one moves along on the journey involves a symbolic representation to oneself of the steps to be taken toward one’s destination. As a symbolic representation in words or images the traveler is able to talk about the route, describe it to others as well as himself and provide such descriptions prior to, during, and even after the journey has been completed.

In order for a route to be complete and understandable (which is not the same as followable) it must incorporate and be based on assumptions about a) the senses available to the traveler, b) the physical capabilities of the traveler, c) the mode of travel, d) the speed of movement, e) knowledge of the traveler’s orientation skills, f) knowledge of the traveler’s acquaintance with and understanding of pathways, land-



marks, and locations, and g) knowledge of the traveler's understanding of spatial relationships and terminology.

## Two Ways of Providing Routes

Routes are a necessary part of navigation and there seem to be two basic ways of providing them. One form is what may be called orientation maps, describing a number of places and their locations relative to each other. The map may be either an imaged representation (a drawn map) of the spatial relationships of pathways and places or a verbal description of their relationships. If presented as an image, the orientation map may be drawn as a two dimensional representation "on paper" as a set of points, figures and sketches of places or landmarks connected by paths and streets. The form and size of the map are not crucial. It may be elegantly drawn to a physical scale of measurement, with streets and buildings laid out exactly as they are, or only sketched out.

A verbal description of where things are in relation to each other, without information about how to get from one point to another, is also a form of orientation map. Such a "map" is not generally considered a map, perhaps because of the form in which it appears. But a detailed description of an area is equivalent to "reading" a map aloud, i.e., saying what is on the map and what the relationships of things are to each other. Verbal orientations to an area, such as the one I have produced for the Boston University campus, are the equivalent of maps that are read aloud.

The details included in the orientation map are selected with the potential user in mind but the construction of an actual route is left up to the traveler. The purposes of the user are built into the map and there is no single map that is best for all purposes. Road maps for the motorist, include those details that motorists need to know if they are to use the map for navigation. In other words, assumptions are made about the typical motorist using maps in typical ways with no specific journey described. A pedestrian's map of the same area would need to include details that are irrelevant to the motorist. We can therefore expect to find a variety of maps of the same area depending on the purposes of the potential user—a driver's map, a tourist's map, a children's map, a map for the non-sighted. The "same" territory turns out to contain many features that can be selected for each of these purposes. No feature is, in itself, necessary for a particular map. Rather, it is the particular use of the map that assigns significance to each feature found in the terrain or environment. The implication of this relation between use and selected features is that no all-purpose map can ever be constructed.

## Occasioned Map

If we were to make a map that included only those features necessary on the particular occasion of its use by a particular person with particular purposes, we would have what Harold Garfinkel, Department of Sociology, University of California, Los Angeles, calls an occasioned map. Its specificity and detail may be considerable, though the map, if drawn, may be only sketchy and imprecise. The reason for this is that the producer of the map has considerable knowledge of the user and is able to omit matter that he knows the user knows; or he can describe details verbally and omit them from a drawing. The drawn map therefore need not contain all the details that would have to be included if the user were "just any one," or an "anonymous other,"—someone for whom details relevant and adequate for a journey or for orientation would have to be elaborated. From

this we find the apparent contradiction that the occasioned map is, in its physical representation, sketchy, vague and imprecise, but rich and complex in specific details that are unmentioned but nevertheless understood, or which are provided verbally and not drawn. Occasioned maps may be either orientation or direction maps.

## Direction Map

Another type of map is referred to as a *direction* map. It may take specific form as a drawing whose purpose is to provide directions to a particular destination. Such directionality may be imposed on an already drawn or produced map by marking a route with a pen to show which way the traveler is to proceed, or the map may be drawn for a specific occasion of its use.

Directions may be provided verbally in response to the question, "How do I get there?" In such instances, the constructed set of directions is designed to "bring" the traveler to a particular destination, starting from a specific starting point, proceeding along named pathways, taking note of locatable orientation points along the way and including information about changes of direction in relation to orientation points (landmarks). An example would be how to get to 236 Bay State Road from Mugar Library on the Boston University campus:

From the front (Commonwealth Avenue) exit of Mugar Library, cross the plaza, turn left, proceed with Commave on your right to the first down curb, which is Granby Street, turn left, proceed to the next down curb, which is Bay State Road, turn left and enter the first entrance to the building on your left.

A more extensive paper on verbal directions and what they consist of is to be found in Psathas and Kozloff (1976).

A set of directions or a route constructed for a particular traveler must, as noted previously, incorporate a variety of assumptions. The problems faced by those constructing a set of directions and those receiving the set are generally due to their not sharing the same assumptions or knowledge. Careful study of competent and incompetent direction givers would reveal that many matters taken for granted by the director about the traveler are inadequate or incorrect. Thus, sighted persons giving directions to blind travelers are not even aware of the sighted bias of their directions. Natives of large cities such as Boston, because they are familiar with the unusual and complex street patterns, the inadequate sign posting of streets, the one way street patterns, etc., find it difficult to give directions to those who are recognized as lacking common knowledge. Moreover, they are unable to figure out how to provide information about those matters that they already know very well, but have never had occasion to describe for others. Motorists have difficulty describing a route for pedestrians in areas for which they have only "driver's knowledge." Giving directions is not a simple matter, as anyone who has attempted to do so knows. Perhaps this accounts for alternatives to describing a complete route which direction givers use, namely, asking the traveler, "Do you have a map?" or, "Do you know where X is?" (which allows them to skip all the steps which would be required to get the traveler from his starting point to X). Direction givers may also suggest, or imply, that the traveler should "ask someone else" such as pedestrians, police officers, shopkeepers, and others presumed to be knowledgeable, during the actual journey. This enables the



traveler to get closer to the destination until it is actually reached.

Issues of how persons read and understand maps, how maps, whether drawn or verbal, are made, and what skills are needed in order to be able to use maps and directions in actual travel, need to be analyzed before any theory of mapping and directions can be developed. Such developments are necessary, however, in order to contribute to the solution of the many practical problems that currently confront those who work with the blind.

Orientation maps and direction maps, whether drawn or presented verbally as in sets of directions, assume skills on the part of the traveler in mobility, orientation, and navigation. Map reading and following are complex skills that must be learned through experience and instruction.

## Conclusion

With regard to the specific skills involved in independent, self-initiated movement, orientation, and navigation by an embodied person, it should now be clearer that different, though independent skills, are required. Being able to move in an upright stance on one's own feet requires the skills that can be classified as *mobility skills*.

Orientation requires skills and knowledge about what are relevant objects and places in one's social world, how these may be identified, and what the spatial relationships of various types of objects and place are. Knowing where these are and remaining oriented in relation to them as one moves, or even when stationary, involves orientation skills.

Being able to move progressively from a starting point to a destination, to read and understand orientation maps and direction maps, to construct and follow a route, and to remain oriented to one's destination while actually traveling may be referred to as navigational skills. Clearly, the skilled navigator, as an embodied person traveling independently, must also be skilled in mobility and orientation. We can understand how it is possible for persons to develop proficiency in mobility without being very skilled in orientation, or be skilled in orientation but unable to navigate independently. However, the accomplishment of independent, self-initiated, and directed travel requires all of these skills, effectively combined and used. ■

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# Review of Literature on Braille Reading

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Since it first appeared as a method of reading for the blind, braille has been a subject of much controversy, and often, disfavor. Originally developed in the nineteenth century by Charles Barbier, a French army officer, to enable his men to send and read messages at night, it was modified by Louis Braille to meet the needs of the blind for a reading system. It was not until 20 years later, however, that it received its first public approval, when in 1854 it was adopted by Braille's alma mater, the French School for Blind Children. In 1869 the Missouri School for the Blind was the first American Institution to adopt it. But it was not until 1932 after decades of acrimonious battles both internally and internationally, when the United States reached an agreement with England to accept English braille Grade 2 as the standard for English language braille, that it received grudging recognition.

Braille is based on a "cell" of six dots arranged in two vertical rows of three dots each. Grade 2 braille, also known as standard English braille, consists of the letters of the alphabet, punctuation, numbers, composition signs, and 189 contractions and short-form words. The cell adopted by standard English braille is considered to be optimum size: small enough to be felt in its entirety by the fingertip, and large enough to distinguish each dot.

**OFFICIAL WRITING SYSTEM** Although it is now the official system of embossed writing for blind persons, the system used by the printing houses for the blind, certified by the Library of Congress, taught to teachers of the visually handicapped as part of their professional preparation, and read by thousands of blind readers, it is still stigmatized, derided, used half-heartedly, and threatened with being discarded each time there appears a new method of imparting information to the blind. This is in spite of the fact that braille continues to be the most exact medium of reading and writing for blind persons (Henderson, 1954; Tuttle, 1972).

Trowald's research (1972) indicates that visual information is generally superior to auditory. By grade six and up, blind children's retention of auditory material is superior to sighted children's, indicating a more effective use of auditory materials due to training and use. But the advantages of braille vis-a-vis auditory materials, as seen by Foulke (1970), are that, because braille is spatial, the reader can vary his rate at will, he can retrace, and he can use format cues such as paragraph indentations, chapter heads, and page numbers to aid in his search of information. The overriding disadvantage is the slow reading rate, which, though it is twice as fast as the braille reading rate of twenty years ago, is still only about half that of sighted students.

Although books written in braille are very bulky, the rate of reading braille relatively slow (100 words per minute as opposed to 250 wpm for the sighted), and the reader often stigmatized by using braille, braille does permit the student to work independently, to take notes, to learn spelling and punctuation, and to have the emotional and intellectual experiences considered important for most students.

Lowenfeld *et al.* (1969) gave what is probably the best advice to teachers of the visually handicapped about the use of braille: "First be sure a child should be educated as a blind child and read by means of braille. Then teach him a respect for the braille system and how it works for him. Without respect for what he is doing, no system can be effective."

**Abstract:** *Braille has been the primary reading system for blind persons for over a century. This article traces the often stormy history of braille, the effects of teaching trends upon it, and the implications new innovations have for its future.*



**LANGUAGE AND READING** Reading is one of the five "language arts," along with listening, speaking, writing, and thinking. The sentence is the basic unit for conveying ideas. A minimum of 10,000 words is needed to understand English; an educated person has command of about 30,000. Gray (1963) maintains that "no one can think beyond the span of his vocabulary." English has certain unique aspects: homographs (tire-tire), homonyms (two-to-too), homophones (many-men), idioms and figurative expressions ("skating on thin ice," "she took the bus home"). Language immaturities are found in both phrasing and pronunciation. The child's ability to enunciate all the consonant sounds is not mature until about the age of seven.

Hildreth (1958) lists the following implications: 1) There is little use in teaching a child to read until the child can use sentence language in conversation. 2) The reading text should not be ahead of the child's own oral language, or it is like learning a foreign language. 3) Language training should accompany reading instruction. 4) More oral work should be given to beginning and handicapped readers. 5) Aural comprehension should be a prerequisite for beginning reading.

Reading cannot be separated from language; without language, one cannot read. Reading is both a receptive and interpretive process. Both print and braille readers must interpret the graphic symbol. Karlin (1971) points out, "a major task in reading is to master the process of converting written language symbols into oral language units." But there is a question which continues to plague educators: Is that *all* that reading is, simply "cracking the code," or does it involve thinking? If reading is transferring written language into spoken language, our major emphasis in teaching should be on letter-sound relationships, spelling patterns, and grapheme-phoneme correspondences, among others. If the function of reading is to discover what ideas are represented by the written word, we should use material which is meaningful to children, instead of "Tad had a bad, sad cat."

Most educators today lean heavily toward the outlook that we read for the ideas contained in the symbols, but agree that until we "crack the code" the meanings cannot emerge.

**READING READINESS** Six of the references consulted for this paper, two writing of sighted children and four about blind children, include lists of traits they consider essential for reading readiness. The item included on *every* list was "experiential background." Each of them stressed the importance of the child's having a multitude of experiences, acquainting him with his environment and the concepts he encounters, and giving him the vocabulary he needs. Mental maturity, linguistic maturity (including adequate vocabulary and the ability to hold a conversation), social and emotional adjustment, were named by five of the six authors. Next in frequency of appearance were interest in books and story-telling, listening ability, ability to follow directions, interpretive development, manual competence and muscular control, and tactile and auditory discrimination and experience. Each author also mentioned other factors such as the ability of the child to care for his basic needs, self-confidence, sense of humor, knowledge of left and right, and adequate span of interest and memory.

It can be seen that the skills needed to prepare a child for reading are the same for *all* children. When a child is deprived, for any reason, of the opportunities to acquire these competencies, it creates obstacles to learning to read. As a logical result, the following problems are most common

in blind children: lack of experiences, leading to concept and vocabulary deficiencies; lack of enthusiasm and motivation; motor clumsiness; and over-ageness, so that content of the beginning primers is not of interest to the child.

What, then, are the special areas to be trained in a reading readiness program for the blind? First, the physical. Frampton (1940) says, "When a child's innate urge to physical activity has been repressed and a physical apathy sets in, the sense of touch is soon lost because of the poor innervation of his atrophied muscles. Muscular memory becomes vague and the natural spur to the synthesis of tactile sensations is gone." He adds that it may even affect the child's ability to place sounds and impair his use of sounds to guide actions, thus interfering with his conception of his environment.

Second, concept development. Maxfield (1928) points out that the blind child's impressions must be constantly reinforced. The sighted child has vision to give frequent reinforcement to the experiences and impressions he receives; opportunities must be found for the blind child to be reinforced in *his* experiences and impressions. It must be kept in mind, too, that more repetitions are necessary to fix new ideas in the mind of the blind child.

Maxfield also recommends that the reading preparation period should be used to develop habits of correct speech, especially in those children with functional speech defects, and those for whom English is a second language. Lowenfeld and others suggest an introduction to braille prior to reading. As the pre-reading sighted child is bombarded with print in his environment, so the blind child should have early and abundant exposure to braille. Items in his environment should be appropriately labeled in braille, he should have access to Twin-Vision books, and the objective should be to make braille an accepted, normal, familiar part of his environment.

In exposing the blind child to experiences and helping him to develop necessary concepts, care must be taken to think and teach in terms of what the child has, not what he lacks; to utilize his useful senses to the fullest, including the development of creative listening; and to beware of imparting synthetic visual concepts to him (Henderson, 1954).

Perhaps a word should be said about teacher readiness. Maxfield advises that "Every teacher of primary braille reading is urged to learn to read braille with her fingers . . . she will know the folly of trying to make the letters more distinct by pressing down harder; why relaxation and good nervous control is necessary for prolonged reading; why children taught letters before words have a tendency to use marked up-and-down motion. . . . In short, she will develop an apperception which will lend force and character to her teaching."

**TEACHING METHODS** The history of teaching reading has been as stormy as that of braille, and while the battle over braille achieved a truce when Grade 2 English braille became the standard, the war of teaching methods goes on.

The earliest method was the alphabet method, which began with the invention of the alphabet and was the primary method of teaching reading and writing until Noah Webster introduced phonetics at the end of the 18th century. In 1838 Horace Mann made a giant step forward with the introduction of the word method, and another giant step was taken in 1884 when sentence reading began. Each of these basic methods proliferated, and each innovation had its critics and its excesses (the "rugged phonics" in use from 1870-1917; the "look-and-say" recognition method, or



treatment of *all* words as sight words). In a recent pamphlet from the National Education Association (NEA), "Current Approaches to Teaching Reading," Mackintosh lists the language experience approach, the phonic approach, the basal reading series approach, the individualized approach, the multilevel reading instruction approach, the initial teaching alphabet (ITA) approach, the words in color approach, and the linguistics approach, as being the principal instructional programs in use in the United States at the present.

For their HEW report Bond and Dykstra (1967) analyzed 27 independent studies of reading programs, including Basal Readers versus ITA; Linguistic; Basal plus Phonics; Language Experience; Basal plus Linguistic Emphasis; and others. The results did not reveal consistent, marked superiority of one reading system or program over another, and a combination of approaches was recommended. It was suggested that teacher competence and pupil characteristics seem to be significant factors.

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In general, the approaches to teaching braille are very similar to, but not always identical with, teaching ink print reading. Rex (1970) points out the features which are unique to braille: 1) dual spelling of words in a contracted and uncontracted form; 2) multiple use of the same symbols as letter, word, contraction, punctuation; 3) similar configurations with lower-cell, one-cell and two-cell, and similar two-cell contractions; 4) rules of braille code regarding the position of characters within the word or sentence, for example, syllabication, composition signs; and 5) the non-phonetic aspects of the code.

Lowenfield pointed out in his study for HEW (1965), the first study since Maxfield on braille reading instruction and the status of braille reading in U.S. schools, that 64 percent of blind students begin their learning of reading with whole words and/or meaningful sentences, and 94 percent of them begin with Grade 2 braille. He also says, "It is interesting to note that, while most instructors of braille reading have given up the practice of beginning with uncontracted braille (Grade 1) and progressing to contracted braille (Grade 2), ITA necessitates, on the part of sighted children, the learning first of one set of symbols and then early in their reading experiences, discarding these and taking up the traditional alphabet."

Teaching of Grade 2 braille from the beginning is encouraged because most braille material is written in Grade 2 and it eliminates the necessity of the child's having to change over later. Analyses of the Dolch, Fitzgerald, Ginn, Hildreth, and Rimland basic vocabularies showed that 152 of the 189 braille contractions are used in the first thousand words of the common reading vocabularies. Because words are taught from the beginning as whole without regard to their compo-

nents, it discourages dot-by-dot perception, makes it easier to remember each part until the end of the word.

**BEGINNING** In 1928 Kathryn Maxfield wrote *The Blind Reading Child and His Reading*. Although a number of studies have been done in the intervening years on various aspects of braille reading, Maxfield's remained the definitive work until 1969, when Lowenfeld, Abel, and Hatlen's *Blind Children Learn to Read* was published. Although Hanley (1961) has called Maxfield's book "sadly outdated," the interesting thing is how relatively little is different. Except for a few areas in which professional viewpoint has changed (e.g., "the partially sighted child should conserve his remaining sight by not using it"), most of her findings are borne out by Lowenfeld's study.

Of all the methods of teaching reading, no one way or combination of ways seem to be the best. Sensitive and creative teachers assess the student and use whatever means seem to be most effective in helping the child learn. Lowenfeld says that the consensus of opinion is that the child should be taught by the method or methods best suited to his needs and which make it easier, more interesting, and more pleasant to learn to read.

There are certain present-day trends in the teaching of braille. The beginning braille material is double-spaced, mainly because that is the format of the American Printing House (APH). Standard size braille is used because it is felt that the enlarged cell encourages dot-by-dot perception. Rex, who did extended analyses of the readers used by beginning learners, developed experimental materials to be used by the blind child—special drills on contractions, flash cards of contractions, drills for phonic skills distorted by contractions, etc.

Braille writing is customarily introduced according to individual readiness. Some children read their own writing better than prepared materials, some like the mechanics of the braille writer, and some teachers delay writing until the children are well into beginning reading so they will be less apt to analyze their writing letter by letter. As Napier (1973) points out, the reader makes no decisions regarding the braille—it is the responsibility of the publisher to adhere to the rules of the system; but when writing, the child must make decisions constantly. The hope is that the contractions and rules will be so mastered in the child's experience that he will be able to write quickly and correctly as a habit response.

Most children begin their writing on the braillewriter. It is less confusing to the beginner to write as he reads, and not have to contend with the reversal of letters on the slate when he is still struggling with symbol recognition and mirror images. Slate and stylus are usually not introduced until at least the fifth grade, when it is taught to enable the student to take notes. The first grade child, whose fine motor coordination is developing, should be free of the tiny detail of the slate and stylus. Also, teachers report, most children like the noise of the braillewriter.

The blind child must be taught which is the "top" of the page, which way a book "goes" and the direction of reading just as the sighted child must be.

The earliest reading experiences are designed to strengthen the child's interest in reading, to fix firmly in his mind the fact that reading communicates ideas, to develop speed and accuracy in reading simple passages, to give him a feeling of success in reading, and to establish proper mechanics of reading. Therefore they are most frequently based



on the language-experience approach, in which the teacher stimulates discussion based on the children's experiences, helps the children to create a story, and to recognize the symbols which stand for the ideas they have expressed.

### Teaching Phonics

There are two basic methods of teaching phonics: the synthetic method, in which the child is taught the sound of individual letters and then shown how to combine sounds to form words; and the analytic method, in which the child is taught to hear sounds as they appear in words and to see how words are similar and different (e.g., hand-sand).

Karlin (1971) classifies reading skills into five categories: word recognition skills, word meaning skills, comprehension skills, study skills, and appreciation skills. The ones of most concern in beginning reading are the word recognition and word meaning skills. Word recognition skills are aided by contextual cues, phonic and structural analysis, and a sight vocabulary. The sequence of word recognition skill acquisition, according to Gray (1963), is 1) recognizing rhyming sounds, 2) recognizing beginning sounds, 3) recognizing words at sight, 4) associating letters and sounds, 5) substituting consonants in words, 6) substituting medial vowel and ending consonants, 7) expanding word attack through structural analysis and through combining substitution and structural analysis. The best use of structural analysis for word recognition, claims Karlin, is to combine context and phonics.

Word meaning skills entail the use of contextual and structural clues, multiple meanings, and the understanding of figurative language. All sources also stress the need for a word-skills or word-attack program. The steps in word-attacks are: 1) the child responds to words representing familiar ideas and language expressions, 2) he centers attention on fixing separate words in his mind, 3) reading for meaning, and 4) examining word parts and sounds.

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**“Of all the methods of teaching reading no one way or combination of ways seem to be the best. Sensitive and creative teachers assess the student and use whatever means seem to be most effective in helping the child to learn.”**

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Skills should be taught in sequence whenever a hierarchy can be discerned, and a multisensory and multimethod approach should be used. Word games, flash cards, anagram blocks, and other devices for use by the individual pupil or in a group situation are recommended. Kenmore (1957) suggests techniques such as making stories come alive by acting them out; providing concrete experiences with items that appear in stories; amplifying the child's concepts of word meanings, idioms, figurative expressions; having the child read *ideas* rather than words; encouraging creative thinking; putting comments in braille on the child's work; putting tactile covers on books; and providing many games in braille.

Lowenfeld (1965) cites the criteria for instructional reading programs. Such programs for *all* students should include

1) development of reading skills to help children identify printed words; to gather meaning from words, sentences, and paragraphs; and to evaluate and draw inferences from what is read; 2) development of reading and study skills in content areas; 3) development of silent and oral reading skills; 4) development of verbal facility; and 5) development of reading interests. “Teaching reading as a skill,” says Lowenfeld, “means that the blind child, as his seeing peer, must learn the recognition of symbols for what is said or experienced.”

### Spelling

Familiarity with the meaning of a word is the greatest factor in spelling it. Although the blind child must learn to spell in two “languages,” (contracted braille and full spelling), and although braille does not always follow print spelling rules, all studies indicate that the blind child is not penalized in his spelling. Hoehn (1966) cites Haye's study (1922) which found that gradewise the blind child was a superior speller to the sighted, but agewise he was inferior, mainly because the blind are usually held back in school. Maxfield contended that the use of contractions actually was an aid to correct spelling, because the blind child “must build up wholes from the sums of their parts *more often* than do people with sight.”

Hoehn indicated that the best results occurred when the child was required to write spelling words in both braille and typing. The rhythm of typing was found to contribute to spelling efficiency. Lowenfeld advises that the child should learn which letters are represented by the symbols as well as just the dot numbers, e.g. S-T rather than 3,4, and A-T-I-O-N rather than dots 6,1,3,4,5. He should be aware of the makeup of the symbol.

### SPEED AND READING

There have been many studies on reading speeds of braille-reading blind persons, with results ranging from lows of 30–40 words per minute to highs of several hundred words per minute, each with their proponents “proving” this or that hypothesis. However, it seems to be generally agreed that the average high school or older braille reader reads about 100 words per minute. The faster reader has two distinguishing characteristics: his comprehension is better, and he uses two hands to read, with one hand beginning to read the next line before the other hand has finished the preceding line. Maxfield (1928) said that “It is estimated that in reading a French braille book a gain is made of about 15 pages to the hour by reading ahead as little as 5 cells on the next line.”

Since one of the major criticisms of braille is that it is so slow to read, and that while sighted readers tend to read faster once the symbols are learned this is not true of braille readers, efforts must constantly be made to find ways of increasing the reading rates of blind readers. Some of the interesting areas of investigation that warrant continued attention are speed reading techniques, symbol recognition practices, and transference methods.

“Transference of informational modes,” refers to information presented simultaneously both in a mode known to the student and in another mode, to facilitate transferring understanding from one mode to the other. Recognized as a beneficial and often highly effective design in learning, it was mentioned by Maxfield in 1928 and then was neglected by the literature until the European Conference in 1971 seemed to renew interest. Maxfield describes how five boys, one of above average IQ, three normally intelligent, and the



fifth with a low IQ, read a story, slightly above their grade level in difficulty, which they had heard from their teacher but which they had not previously read in braille. "Yet these five boys were reading along, orally, almost as fast as they would normally speak, and were understanding what they read." She noted too that as they read they were running their fingers over the braille horizontally from left to right, with only a slight movement up and down. This mechanic of reading braille is a constant factor in descriptions of readers with higher reading rates: their pressure is light, their movement is quick, steady, and free from up and down or rubbing motions.

After Maxfield, transference as an important learning tool disappears from the literature until 1971, when Nils Trowald, of Uppsala University's Department of Educational Research, suggested the possible use of braille in conjunction with talking books, not only to increase the braille reading speed, but also as a training aid for auditory comprehension. He felt that such techniques could be mutually beneficial.

In 1972 Cronin described how dyslexics, unable to understand and interpret visual symbols, are being taught braille. Braille, like printed language, is spatial in nature rather than temporal, as is spoken language. Since it is tactual rather than visual, it is hoped that it will be effective with persons who have dyslexia.

### Symbol Recognition

Symbol recognition improvement has long been an area of concern and effort of educators of the blind. Nolan, (1971) who found that the cell is the unit of braille recognition, also found that it sometimes took twice as long to recognize a word as it did *all* of the individual symbols in the word. This has been an area which has captured the attention of many researchers, and from the wealth of studies certain provocative implications emerge. Umstead (1972) found that braille recognition training improves reading. Weiner's (1963) study found that good readers are able to handle highly complex tactual perceptive materials better than poor readers, although there was no significant difference on simple tasks. This study posed some questions for future research regarding the reasons for this difference: Is it because of increased neural-sensitivity in their finger-tips? Or because of greater gross and/or fine motor coordination? Ashcroft (1961) found perception problems due to the inability of the reader to suspend judgment or maintain an adequate attention span till the end of the word or phrase or sentence, and orientation problems due to reversal errors in recognition of the numerous mirror image symbols in braille. Foulke said that if slow braille reading is due to serial perception, and serial perception is due to the narrow width of the "perceptual window" through which information is obtained, then widening the "perceptual window" so that a larger number of characters can be observed at once should make for faster reading. This view had not been held by Fertsch who, in 1946, made a movie of the hands of braille readers. Observing as all other researchers have that two-handed readers are the fastest, Fertsch said the increased speed was gained "not by enlarging the readers field of view—that is, by increasing the area of sensitivity that can be affected at one time—but simply by making more efficient use of the time spent in reading."

### Anticipation Span

Hildreth (1958), writing about sighted readers, and Maxfield (1928), about braille readers, both discuss the

same phenomenon as a factor in reading speed: the A-span, or eye-voice or anticipation span. The A-span is the distance between the point to which eyes/hands have moved ahead and the point where interpretation is taking place. A-span is also found in all situations requiring interpretation of a succession of related impressions, rapidly and without interruption or error: listening, speaking, music sight-reading, interpreting, driving, etc. Speeding up in reading depends mostly on shortening the fixation pauses and lengthening the A-span.

Foulke's study in 1964 shows that the ability to read braille is not limited to the two index fingers; Troxel's study suggests that sequences of patterns can be identified as rapidly by touch as by vision. Foulke also cites Grunwald's experiments (1966) with moving braille tape, the speed of which is not controlled by the reader. Speeds of up to 250 wpm were reached, with the readers commenting that they were able to perceive the patterns of entire phrases and sentences. Similar results were achieved by Ashcroft, and by Kederis, Nolan, and Morris, and are borne out by numerous tests indicating that Morse code is understood more easily at a smooth, rapid pace; when it is slowed down to the point where reception is letter by letter, understanding almost ceases. Other tests indicate that inkprint readers reading one letter at a time have the same reading rate as braille readers reading letter by letter.

These findings lend excitement to recent experimentation in speed reading in braille. As described by McBride (1974), who claims that in his workshops braille readers have increased their reading rates in two weeks from an average of 138 wpm to 710, the system encompasses the following steps:

1. *Encounter all the words.* The reader tries to encounter all the words in as short a period as possible without trying to understand their meaning. He moves his hands over the page in any way he wishes: across the page, straight down, straight up, spiraling, zig-zagging, etc., using both hands and as many fingers as possible.

2. *Avoiding subvocalization.* He avoids subvocalizing by moving his hands on the page so rapidly he does not have time to say the words in his mind.

3. *Practice.* This process is continued for two days, with at least one hour per day practice divided in 10-to-20 minute periods. The object is to move the hands more and more rapidly, just being sure that every word on the page is being encountered.

4. *"Bits and pieces" comprehension.* On the third day the reader begins to try to recognize some of the words—about two to three to a page. The reader tries to catch a few key words, such as answers to "Who?" "Where?" "How many?" "What color?" No attempt is made to understand the story, and care is taken not to decrease the speed of the hand movements.

5. *Increasing comprehension.* The reader attempts to get "the thread of the story."

6. *"Book report" comprehension.* The reader begins to think in terms of "main ideas," "sequence of ideas," "main characters," and the relationship of the main characters to the story.

7. *Daily practice to maintain and increase speed.*

Crandall and Wallace (1974) in their experiment reported increases in reading speed from an average of 80 wpm to 225 wpm after only six hours of rapid reading instruction.



**BRILLE** There are many other areas of research into  
**AND THE** braille and its future that urgently need investi-  
**FUTURE** gation. Technology has reached the point  
 where, for example, IBM has developed a punched tape  
 with braille coding. Systems have been developed to  
 generate braille-transcribed material on an electric braille-  
 writer and to generate braille via the telephone. MIT  
 is working on a device for transmission of pictures in  
 embossed form; while Recordings for the Blind, Inc., is  
 developing instrumentation to convert graphic material to  
 embossing. Other creative and innovative studies are being  
 suggested, and there is cause for optimism that braille will  
 become a more efficient and effective method of reading  
 and writing for the blind. ■

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# In-Service Training Programs for Alternate Care Facilities

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The three day in-service training program now being conducted in alternate care facilities in the State of Michigan traces its origins to March 1972, when the American Foundation for the Blind sponsored the Mid-West Regional Conference on Aging Blind Persons. One of the conference recommendations was that intensive in-service training programs for nursing home staffs be developed. This recommendation stemmed from a realization that the dignity of residents—their self respect and their self worth—depends largely upon the understanding and empathy of the staff, and their ability to help residents to function optimally within the limitations imposed by their visual and physical problems. The goal of the recommended program would, therefore, be to educate the staff in understanding, helping, and working with visually impaired residents.

After this conference, I began to develop a comprehensive in-service training program for alternate care facilities within my region of northern lower Michigan. Initially, AFB's Regional Consultant for the Middle Atlantic States, A. Marie Morrison, published an article entitled, "Some Guidelines for Providing In-Service Training to the Staff of Nursing Homes and Homes for the Aged" which was most helpful in developing this particular program. Two other sources of information were, *Caring for the Visually Impaired Older Person* (Minneapolis Society for the Blind), and *An Introduction to Working the Aging Person Who Is Visually Handicapped* (American Foundation for the Blind).

Because of the difficulty of operating in-service training programs and keeping up with an itinerant case load, I did not inaugurate the program until November 1973, when a student intern from Western Michigan University was assigned to this area. This intern and a succeeding student were invaluable to the program. Even now, outside assistance on a volunteer basis is most helpful.

In December 1974, as a result of the success of the program, a meeting was called by the director of the State Agency to discuss the feasibility of conducting such programs on a state-wide basis. Attending that meeting were the state rehabilitation teachers, supervisory and administrative staff, and representatives from the Greater Detroit Society for the Blind, and the Industrial Home for the Blind—agencies actively conducting in-service training programs. The meeting concluded that this type of a program was feasible, and, beginning in January 1975, the state rehabilitation teachers began to implement the program in their respective regions. A standardized package was developed which included a set of guidelines for each teacher, audio-visual materials, occluders and forms.

**Abstract:** *The in-service training programs currently being conducted by the Michigan Division of Services for the Blind are being directed to the medical and para-medical staffs in alternate care facilities. The goal of the program is to educate the staff in understanding, assisting, and working with visually impaired residents. The program consists of three segments: 1) skill training of staff, 2) patient census, and 3) patient interview. A standardized package has been developed and is available to any interested person.*

**Note:** *Copies of the standardized package described in this article are available from the Michigan Department of Social Services, Division of Services for the Blind, 300 South Capitol Avenue, Lansing, MI 48926.*

**THE PROGRAM** The program as it exists at the present is as follows. First, the rehabilitation teacher contacts the nursing home or medical care facility to describe the program he is offering. Next, time and dates for the program are arranged. When the program first began, I attempted to offer sessions during each shift. This soon proved impractical and the guidelines for the program now encourage teachers to present the program at several identical sessions during the day, over a period of three days. The program format varies according to the wishes of the facility. The length of each session also varies from one hour to one and one-half hours. Publicity for the program is also arranged. Newspaper coverage informs the people in the community that their facility is doing its best to



improve the services offered and also makes the teachers' role in the community more visible. The teacher then forwards three films to the facility for showing to the staff during the week before the program. The object is to give background information to the group and to set the tone of future information. The films are: "May I Help You," "Not Without Sight," and, "What to Do When You Meet a Blind Person."

The first day of the three-day training session consists of lectures giving an overview of the workshop and supplying basic information. In conducting these programs we have found that most staff persons have no idea of the number of visually impaired residents within the facility because their concept of a blind person is the conventional one of a person who is unable to see anything. As a result, they tend to label inappropriate behavior and physical limitations as strictly a result of senility or physical or emotional problems. Topics covered in the lectures include misconceptions regarding blindness; the social, physical and emotional implications of blindness; the psychological reactions to blindness; and the characteristics of partial sight. The teacher then begins to inform the staff of the capabilities of visually impaired persons. In addition, he discusses and demonstrates communication skills, personal management skills, and leisure time activities. At this time the teacher shows some of the available aids and appliances for the visually impaired, such as special writing aids, large print telephone dials, and adapted games. Methods of coin and bill identification are also demonstrated. Finally, during the first session, the staff members are given a kit containing a variety of informational pamphlets. Some of the titles included are: *Opportunities for the Blind in Michigan*, and, *Michigan Rehabilitation Center for the Blind*—both of which are published by the Michigan Department of Social Services. Other pamphlets include: *Facts about Blindness*—a pamphlet published by AFB, and *When Your Patient Is Blind*—published by IHB. There are also several reprints involving basic rules for teaching and assisting the blind, suggestions for guiding blind individuals and rules for good eye health. A master kit is also given to the facility which includes all the items in the individual kit, plus the manual, *Caring for the Visually Impaired Older Person*.

### Value of Occluders

The goal on the second day of the training session is to demonstrate orientation, sighted guide, and protective techniques. At this time participants are encouraged to wear an occluder. Even though use of the occluder in training sighted staff and volunteers has always been controversial, we feel it is indispensable in helping sighted people gain a deeper understanding of blindness. During a recent in-service training program I was, thanks to the Department of Rehabilitation, Western Michigan University, given the opportunity of using special goggles that imitate the effects of various eye dysfunctions. The participating staff and I felt that this added an extra dimension to their understanding of partial sight.

After the teacher has demonstrated sighted guide and protective techniques, the group is paired off and the staff take turns in practicing mobility techniques, one wearing the occluder while another plays the part of a sighted guide. They practice the basic grip, doorway, stairway, and chair techniques. Getting a drink and washing their hands while blindfolded also gives staff members a brief opportunity to experience what it is like to function without sight.

If the second session makes blindness more of a reality to staff members, the third makes it even more vivid. This is the day for a demonstration of eating skills. When I first developed the program, this segment was merely a demonstration of eating skills. Recognizing that the success of the program was contingent upon the degree that one can involve the staff, this segment was changed to involve the staff in practicing eating skills while occluded. Again, after the teacher demonstrates proper eating techniques, the staff members pair off and take turns wearing the occluders. The sighted guides obtain the food which has been arranged for, and begin the session by feeding the occluded member a portion of the food. Then, the sighted guide orients the occluded person to the plate and the side dishes and the occluded member proceeds to feed himself. This sensitivity training is very revealing, according to the participants. After handling such food as peas, beef stroganoff, jello and coffee, they are invited to share their reactions with the group. Their actual experience of deprivation of sight for a brief period and the subsequent exchange of ideas is one of the highlights of the program.

### Flexibility Encouraged

Although rehabilitation teachers each have a standardized package as a guide, they are encouraged to be imaginative, flexible and adaptive. Some teachers have, at the request of the facility, condensed the three-day program into one- or two-day presentations. I personally feel it is important during the first session to emphasize eye physiology, causes of blindness, and characteristics of partial sight. A model and poster of the eye are used by me to illustrate the subject. The model was obtained gratis from the Merck, Sharpe and Dohme Company. The 32" x 46" poster entitled "The Anatomy of Seeing" was obtained from the George F. Cram Company and shows in great detail an enlarged horizontal section of the right eye. Smaller illustrations on the chart show the eye muscles, details of the retina, causes of near and far sightedness, cataracts, glaucoma, astigmatism and corrective measures. In addition, a brochure available from the New York Association of the Blind entitled *Low Vision Service*, which presents photographically what a person with partial vision sees, is distributed to the staff for their interest and information. Another teacher uses the film strip, "A Change for the Better in Sight," available from the Minneapolis Society for the Blind. This 26 minute film strip and accompanying cassette tape deal with visual impairments, and provide information on how to recognize, assist and teach visually impaired residents in nursing homes. The information in the film strip parallels that in MSB's excellent manual, *Caring for the Visually Impaired Older Person*.

Another aspect of the program beyond the three-day presentation is the census of all residents with severe visual problems. This is an attempt to determine the extent of a resident's visual problem and to insure the staff's awareness of the problem. The census is followed by interviews with the patients. An attempt is made to discover what special problems exist and what services can be made available to these residents either by the rehabilitation teacher or through other community resources. To date, state-wide statistics have not been compiled on the findings of the census and interview. However, during the two years I have been conducting these programs, 24 percent of the residents have been identified as having visual impairments. Most of these had not previously been identified by the staff. In surveying the charts of these



residents, objective information on acuity was found in 4.5 percent of the charts; on etiology, 8 percent. None of the 11 facilities I have been involved with provide routine visual screening. These findings tend to support recent research, such as Rusalem's and the South Dakota project, which have demonstrated that visually impaired residents are not being identified in nursing homes.

#### STAFF

At the end of the program, questionnaires are given to the staff to evaluate the program. These questionnaires have been supportive and encouraging. Some of the comments have been as follows:

—LPN: "When I was blindfolded I became aware of the helpless feeling a newly blinded person must feel."

—Nurses' Aide: "The movie, 'What To Do When You Meet A Blind Person,' showed me I could help blind people on the street and I didn't need to be afraid of them."

—Nurses' Aide: "It is amazing what blind people can do for themselves."

—RN: "The movie, 'Not Without Sight,' made the partial vision of our residents more understandable."

—Nurses' Aide: "Using the blindfold in areas of eating and walking made me more sensitive in how to assist blind residents."

—In-Service Coordinator: "I thought the role playing sessions (using the blindfold) were the most valuable because it put the staff person in the place of a visually impaired resident."

—Charge Nurse: "I feel fortunate to have had this educational opportunity. There are many more services offered to the blind than I knew about. I feel if I could not personally help a blind person, I could at least refer him to the appropriate resource."

—Nurses' Aide: "This session has had a major impact on my feelings about the blind. I no longer feel afraid of them."

—RN, Director of In-Service: "The manner in which the program was presented made it interesting, informative and useful. The response from the staff who attended has been very favorable and many who did not attend are hoping for the classes to be offered again."

—RN, Director of L.P.N. Nurse Education at a local col-

lege: "The presentation contained a wealth of information and was excellent. I only wish this had been available to me years ago. We are interested and would like to have this program presented each year to our nursing students."

—Director of Nurses: "The knowledge the staff gained has helped us to ease our work load by teaching the visually impaired residents to feed and help themselves."

A final report is then written by the teacher and forwarded to the administrator. Finally, a personalized certificate is awarded each participant who attends all of the sessions.

The program is still offered state-wide by the ten rehabilitation teachers employed by the Michigan Division of Services for the Blind. During the calendar year 1975, the program was conducted in 51 facilities with 1,839 staff persons participating in all or part of the program.

In conclusion, we are all aware that the aged blind have, historically, been ignored by the blindness rehabilitation system. It is my belief that these in-service training programs will result in improved quality of life for visually impaired older persons in alternate care facilities. ■

#### Resources

American Foundation for the Blind. *Facts about blindness; An introduction to working with the aging person who is visually handicapped.*

Industrial Home for the Blind. *When your patient is blind.*

Michigan Department of Social Services. *Opportunities for the blind in Michigan; Michigan Rehabilitation Center for the Blind.*

Minneapolis Society for the Blind. *Caring for the visually impaired older person.*

New York Association for the Blind (Lighthouse). *Low Vision Service.*

New Outlook for the Blind. *Some guidelines for providing in-service training to the staff of nursing homes and homes for the aged, 1970, 64, 81-85.*

#### Films

Minneapolis Society for the Blind. *A change for the better in sight.*

American Association of Workers for the Blind. *May I help you?*

American Foundation for the Blind. *Not without sight; What to do when you meet a blind person.*

## A Cuber That Makes Square Eggs—Aids for People Who Have Everything!

For visually handicapped persons who have bought their way through the aids and appliances catalogs of the American Foundation for the Blind, the Royal National Institute for the Blind, the American Printing House for the Blind, *et al*, plus the *International Catalog of Aids and Appliances for Blind and Visually Impaired Persons*, the Neiman-Marcus and Bloomingdale's Christmas catalogs, and L.L. Bean, we suggest:

*The Rapid Corkscrew.* This Swiss mechanical corkscrew with chrome-plated steel barrel, vise-like clamp, ebony wood handle and pointed worm, attaches to a table edge. It extracts the cork from the wine bottle neatly and it comes out the other end of the barrel. The price? Oh, in the neighborhood of \$125 at purveyors such as Bloomingdale's (where else?) and Bonwit Teller.

*The Square Hard-Boiled-Egg Cuber.* The promoters of this device suggest that square eggs, unlike the near-perfect ovals they start out as, will not roll off plates and will adapt more nicely to square sandwich bread (remember, bread didn't start out square either). But, compared to the Rapid corkscrew, the square hard-boiled egg cuber is a bargain: two for \$10 at Saks Fifth Avenue stores.

# Teaching Basic Ward Layout to the Severely Retarded Blind: An Auditory Approach

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Preliminary to the implementation of their innovative program to teach ward layout to the retarded blind, McGlinchey and Mitala (1975) surveyed the literature and attested to the scarcity of work on mobility for the severely and profoundly retarded blind person. Perhaps one of the reasons so little attention has been directed toward this group is that the conventional meaning of mobility has so little relevance to their needs. Upon observing the behavior of the severely retarded blind it does not take long to realize three important facts: 1) they rarely, if ever, engage in meaningful movement on their own, 2) they do not exhibit indications of the ability or even the desire to learn the rudiments of independent mobility as we conceive of it, and 3) assisting these individuals in a daily schedule of mobility that leads directly to basic need fulfillment (receiving food, relieving oneself) is not enough to increase significantly the individual's awareness of movement for a reason. In this context then, the goal of mobility training should be behavioral conditioning of the individual to movement as a necessary prerequisite to need fulfillment. More specifically, the retarded individual must be made aware of the fact, for instance, that independent movement is involved in receiving food.

**STAFF RE-EDUCATION** Unquestionably, the aide or attendant who expedites movement of blind retardates by "herding" them from one place to another will interfere with a behaviorally oriented intervention program. Thus, the first step in structuring a mobility program for the severely retarded blind must be to educate the attending staff. Unfortunately, breaking the institutionally engrained habit of "herding" residents from one place to another is not an easy task, but it is one which must be undertaken.

## Auditory Clues

McGlinchey and Mitala proposed using tactual clues on the wall and floor in teaching ward layout to the severely retarded blind. The mobility program for teaching nine retarded blind persons (ages 17-21) at Oak Cottage, the unit for multiply handicapped and severely retarded children at Muscatatuck State Hospital and Training Center, is also based on environmental design. However, instead of using tactual clues the Oak Cottage approach is completely auditory in nature. All nine of the residents responded normally to auditory stimuli. McGlinchey and Mitala did not deal with a problem that virtually all the residents in the Oak Cottage project had to overcome, the inability to understand intrinsically the meaning of a clue or landmark to assist orientation. The Oak Cottage approach attempts to deal with this problem by using orientation clues that are associated with the task at hand, such as receiving food. In addition, the Oak Cottage approach attempts to associate movement with receiving food in order to emphasize "movement for a reason."

**MEALTIME MUSIC** For approximately one month, the nine blind residents were exposed to taped music during mealtime. At the same time, work was begun on the installation of a special sound system to provide directional feedback to the residents at critical turning points on the route from the dayroom to the dining room and back. Electronically triggered floor mats were placed at the junction of each critical turning point. Speakers were installed along the route walls in a sequential pattern so that a speaker would always be ahead of the resident on either the route to or from the dining room (Fig. 1.). Each floor mat was

**Abstract:** *In a mobility program to teach basic ward layout to nine severely retarded blind residents (ages 17-21) of Muscatatuck State Hospital and Training Center, auditory clues associated with receiving food were used on the route from the dayroom to the dining room and back. When electronically triggered floor mats placed at critical turning points on the route were stepped on, they activated strategically located speakers to play "food associated" music. Although this approach was endorsed as a viable concept worth further investigation, a controlled study was not conducted, and conclusive evidence on the effectiveness of the approach must await further investigation.*



connected to an electronic control so that when a mat was stepped on, it activated the speaker immediately ahead of the resident in the correct direction. The time the speaker was on could be varied from one to 30 seconds. Speaker time was set at ten seconds. The same music that had been played during mealtimes was used in the speaker-mat system so that sound clues would be meaningful.

### Auditory Guide

After the music had become associated with eating for a sufficient time, the residents were ready to learn to navigate the route to and from the dining room with only the assistance of the food-associated auditory landmarks. When it was time to eat, the music stimulus was turned on in the dayroom for approximately 30 seconds. This stimulus signified that it was meal time. One by one, each resident was encouraged to proceed individually on the route to the dining room. At each critical turning point the resident received the necessary auditory clue to enable him to proceed in the proper direction. The process was repeated on the return route.

### Controlled Study

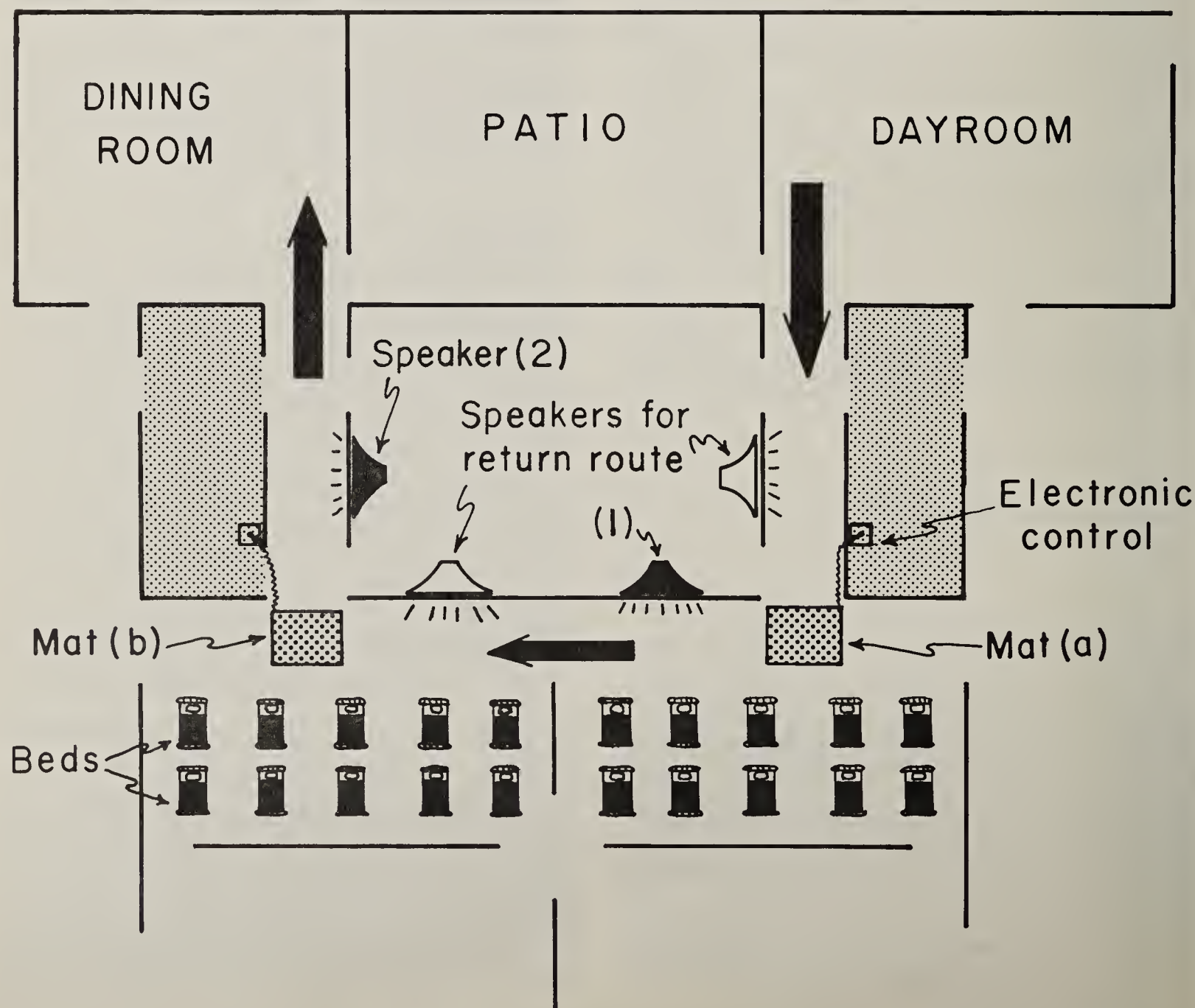
Although this experimental approach to learning basic ward layout must be tested in a controlled study before any conclusions about its effectiveness can be made, our pre-

liminary observations suggest that it is a viable concept worth testing further. We were not able to provide conclusive evidence on the effectiveness of this approach because a considerable degree of learning took place during the month of associating the music with eating and also during the period of time it took to install and de-bug the system. We believe that the learning time could be significantly reduced in any future effort. It is our hope that the Oak Cottage project as well as the work of McGlinchey and Mitala will encourage other institutions to experiment with environmental design as an approach to teaching ward layout to severely and profoundly retarded blind persons. ■

I am indebted to Dave Plaiser of Indiana University for his help in designing the sound system and Jim Green of Muscatatuck State Hospital and Training Center for his help in installing the sound system.

### Reference

McGlinchey, M. A. & Mitala, R. F. Using environmental design to teach ward layout to severely and profoundly retarded blind persons: A proposal. *The New Outlook for the Blind*, 1975, 69, 168-171.





# Comment

*A special forum for individuals to respond in detail to material published in the New Outlook for the Blind or elsewhere, to present new ideas, or to raise issues that relate to the specialized field of work with blind and visually handicapped persons. Contributions should be 350-1000 words in length.*

## Braille Program for the Beginning Reader

Gloria Tugendhaft

There is a great need for the development of a special braille reading program for beginners. Because of the differences between braille and print characters, traditional methods of teaching reading are not to the advantage of young braille readers. Described here is a case report of a student who did not respond to a traditional reading program, but did extremely well with a specially designed program.

I first saw A. when she was entering the second grade at a small private school for sighted children. The directors of the school had hired me to be a braille teacher. Before I began working with A., a conference was held with the preschool director of the local agency serving the blind who had worked with A. since she was two-years-old, and remained in close contact with the child and the family. She said that A. had an above average IQ and was a delightful child to work with, despite a tendency to be strong-willed and manipulative.

A. had led a particularly sheltered preschool life following brain surgery at ten months. It was this surgery that had caused damage to the optic nerve, resulting in blindness. After six years, medical prognosis was good and the parents became concerned about getting the best possible education for their blind daughter. Further information gained from the school principal indicated that A. was a very sociable youngster, highly verbal, but had not responded well academically during the previous year. This was in spite of the efforts of an itinerant teacher plus a classroom teacher so sensitive to the needs of this special student that she had taken the trouble to learn the braille code. Many interesting materials had been provided for A. to encourage her to join the reading program of her sighted classmates.

### Assets and Problems

The first few sessions with A. corroborated the fact that she was a delightful, intelligent youngster. Her use of language, choice of vocabulary, and sense of humor seemed well beyond what one would expect from a seven-year-old child. Rapport was established with ease.

An informal inventory revealed further assets: (1) good use of auditory modality resulting in a strong awareness of phonics and the ability to spell many words; (2) a love of literature with a strong desire to be able to read; (3) good long-term memory, particularly for facts that had caught her imagination; (4) firm memorization of the words represented by each letter of the

alphabet according to the braille code; (5) good tactile discrimination. Deficits that surfaced immediately were: (1) inability to recognize any word in braille, including her name; (2) inability to recognize any letter of the alphabet with the exception of the single dot a and occasionally b, although the latter was often misread as a c; (3) inability to use the Perkins Braille; (4) random counting consistent only up to ten, with no one-to-one association in counting objects; (5) non-existence of laterality and directionality; (6) finger agnosia; (7) poor fine motor coordination; (8) perseveration, apparent when she was asked to switch from one key to another on the braille rather than make a continuous succession of dots with one key; (9) poor spatial relationships; (10) a high degree of tension concerning braille, resulting from the failure of the previous year.

### Games to Improve Reading Readiness

During the first few months, those concepts that related directly to the reading process were emphasized. No attempt was made to coordinate lessons with what was going on in the classroom since A. was not able to cope with that level of instruction. A teacher-aide in the classroom worked in cooperation with the braille teacher to reinforce the skills learned during the braille lessons. At the beginning, sessions were limited to three per week, with each lasting one to one and one-half hours. In January this was increased to six to seven hours per week. It became apparent during the early sessions that A. could respond to a reading program, but that writing would have to be held off until fine motor coordination was improved and perseveration and finger agnosia were decreased. Exercises to accomplish this were suggested to the classroom teacher. Practice on the braille was limited to a few minutes of each braille lesson. Before any reading was attempted, concepts of directionality that had previously been developed only in relation to herself had to be related to a sheet of paper placed on a desk, i.e., top and bottom, across, up and down, above and below, next to, etc. Games and exercises to increase laterality, and finger games were part of each session. A program to develop math concepts was also initiated.

Contact with braille was begun with a game of "find the one that's different," a row of braille characters all the same except one. Following that was familiarization with a teacher-made alphabet kit. Small toys (mostly miniatures of animal and cartoon characters) were used with each object representing a letter of the alphabet. A. was able to distinguish one from another without difficulty, and her fascination for the objects provided the desired motivation. A small group of these was set aside and labels introduced with the understanding that as soon as labels could be matched to the objects, a game would be played. A. was encouraged to recognize the word by the initial letter. The first few were the most easily distinguished in braille: alligator, bear, goat, lion, tiger. The first game consisted of cards saying, "You can have \_\_\_\_." If A. read the card correctly, she kept the object. A. was told that she must "read" the whole card, although she was again encouraged to recognize the object name from the initial letter. The aim at this

point was not to teach recognition of whole words, but to become familiar with the letters of the alphabet. Since the words *you*, *can*, and *have* are represented in the braille code by their initial letters, the letters *y*, *c*, and *h* were actually being taught along with *a*, *b*, *g*, *l*, and *t*. As soon as there was some recognition of these letters, they were made into as many words as possible, grouping them into families, for example, short *a* words, *all* words, and *ay* words. Lists were made, short ones of just two or three words each at first, then gradually growing longer. Next the words were presented individually on flash cards (half of a three by five index card with a row of dots across the top to indicate how to hold it proved about the right size). Flash cards were also used for the individual letters.

### Outrageous Phrases

The reading process progressed from putting letters together to make words, to the next logical step, putting words together to make phrases. The more outlandish the phrases the better! A. giggled over such phrases as tall ball, a gay bat, a little hag (*little* in the braille code is *ll*). The choice of letters taught at the second stage was governed by their frequency in high interest words and words that were easy to learn in braille. Thus, the introduction of *p*, *d*, and *m*, expanded the vocabulary to include such words as good (*gd* in braille), dad, bad, mad, play, and ham, and increased the phrase possibilities: a good dad, a tall cad, a bad baby, a clay hat, etc. The phrases were constantly changed, and new lists made up to eliminate the possibility of memorization. Again, simple games were devised, for instance, boxes of different sizes and shapes were used to house the "families"; letter cards were attached to the outside of the pockets of a shoe bag, and matching words placed inside the pocket; interesting objects found in the classroom were placed on the desk with instructions to put all the cards of the same family or beginning or ending with the same letter, on, in, or under the correct object.

It must be noted here that "reading" at first consisted of letter-naming, putting the sounds of letters together, and then finally saying the word. Though this often results in word-by-word reading in the sighted child, it was felt that it might not present the same problem to a braille reader since in braille reading, according to the study made by Nolan and Kederis (*Perceptual Factors in Braille Word Recognition*, American Foundation for the Blind, 1969), it is the cell rather than the total word that constitutes the perceptual unit. Another point worth mentioning is that lists and flash cards were sent home for practice. This may not always be advisable, but in A.'s case, it proved to be helpful because of the good relationship between A. and her mother, and the positive influence her mother had upon her. A.'s desire to please her parents was certainly an added motivational factor.

### Sequence of Lessons

It was at about this point in the program (two or three months into the school year) that A. actually began to read: i.e., reading whole phrases rather than letter naming. From that time on, progress was much



faster, with occasional plateaus providing a signal to slow down. One such plateau was reached when phrases were expanded to sentences. The dot that transforms a small letter into a capital letter was read as *a* and the period was read as *d*. This had been anticipated and introduction of punctuation had been held off as long as possible, and was one of the factors considered in creating this braille reading program. It should be noted also that the letters introduced first included only one of any pair of mirror image braille characters. Thus *f* (mirror image of *d*), *w* (mirror image of *r*), *j* (mirror image of *h*), and words with *th* (mirror image of *p*), *sh* (mirror image of *m*), and *wh* (mirror image of *s*) were also introduced late in the program. This was found to be a distinct advantage in using a braille reading method that would be impossible to achieve while adhering to a basal reading program or any program designed for sighted children.

The progression of vowels taught was another major deviation from that followed by most reading programs. The letter *o* followed *a*, then *i*, then *u*. When *e* was introduced it was first as the silent *e* in long vowel words rather than in the medial position. This minimized *e-i* confusion. No words containing braille contractions were used in the beginning stages (another impossibility when using a traditional reading program). Single character contractions other than those represented by a letter of the alphabet (and, of, with, etc.) were introduced only after contextual reading had become a part of the program.

### First Books

"Books" were prepared as soon as there were several lists to put together. These books were entitled "I Can Read," "A. Can Read," "Words," "More New Words," "A. Can Read Sentences," and "A. Can Read Stories." Two other books that were important in motivation, as well as in building a vocabulary, were "The Zoo Book" and "The Farm Book." Each page of the books had the same one, two or three sentences: "I can see the \_\_\_\_\_," "Here is a \_\_\_\_\_," "It says \_\_\_\_\_," "The baby is \_\_\_\_\_." Corresponding plastic animals were kept in a pocket in the front of the book and as soon as A. could read the page, the correct animal was found and put into its "cage" (a rubber band scotch-taped to the back of the page and pulled through a hole to the front of the page). Contextual reading was begun by means of a daily newsletter, usually starting with "Good morning, today is \_\_\_\_\_. It is a (cold, cool, sunny) day," and telling what game we would play that day. The newsletter was eventually expanded to include an interesting item about a pet, an item found in the morning newspaper, or perhaps an event that took place on the way to or from school. These were prepared in advance and were often the highlight of the day. Vocabulary was carefully controlled in these as well as the teacher-prepared story books introduced later. Words were chosen to insure constant repetition of the braille characters already taught and to teach new ones.

### Decoding Words

Throughout that first year, the policy of presenting a new word only after the con-

stituent parts of it had been taught was carried out wherever possible. When it was not possible, A. was encouraged to decode the word with the unfamiliar character by using a combination of clues: the known letters in the word in question, the words surrounding it, and the story context. This developed into a skill that proved to be a valuable asset for her. To this day, some of the 20-odd reversal possibilities in the braille code occasionally present a problem to her in reading words in isolation, but new words in context are usually decoded with little difficulty.

Another point of departure from a traditional reading program was the exclusion of conversation, since quotation marks are another source of possible confusion for the beginning braille reader. A further stumbling block was avoided by using Mom and Dad in the early stories rather than Mother and Father, introduced early in most basal programs, which would have necessitated teaching the use of the 5-dot, which can so easily be mistaken for the letter *a* if taught too early. Thus, for example, familiarization with *am* was solidified before Mother was taught (*M* preceded by a 5-dot in the braille code). As these difficult-to-discriminate words became numerous enough in the reading vocabulary to cause a problem, lists of "tricky" words (one pair to a line) were used for drill. These were fun for A. when some incentive was provided such as, "I'll drop a bean into a cup every time you get one right—let's see how many beans you can get today."

### Motivation and Rewards

One of the main elements of the program was the constant use of devices particularly meaningful to a child. Thus, food (one of A.'s favorite subjects, and that of many children) was the vehicle used to teach color and number words. Once a week was "shopping day." Different types of food were placed on the desk along with a shopping list and a shopping bag. Finding two yellow bananas, three green peppers, one red apple, etc., was a painless way to learn the color words that play a large part in the early stages of most traditional reading programs, and are so meaningless to a blind child. Another treat for A. was having "picture dittoes" to do. Objects were glued to a ceiling tile and matched to words or sentences by means of a rubber band stretched between two push pins. Another device involved the use of a spring-type clothespin with a sound or word brailled and taped to the flat end. The clothespin was to be clipped to a double thickness of cardboard for many different matching exercises. These, as well as other supportive measures had a triple purpose: motivation, development of small muscle coordination, and vocabulary reinforcement.

No basal readers, trade books or workbooks were used the entire first year. However, in the second half of the year, adaptations of trade books and stories taken from various basal readers were transcribed with careful control of the vocabulary to eliminate the more difficult letters and contractions such as *z*, *q*, *ou*, and *ow*. These were not taught until the very end of the year, and required concentrated reinforcement during the second year. Some commercial games were used: the various lotto games with the names of the pictures written on

braille paper and attached with double-stick scotch tape to the cards (writing them on braille labels would have been more efficient and permanent, but also more costly). Card games such as Old Maid, Phonics, Rummy, and Animal Rummy were also easy to use since their names could be brailled directly on the cards, thereby permitting their use by the blind student along with sighted classmates. Throughout the first and second year, whenever a new book was presented, either for reading with the itinerant teacher or for home or class reading, a set of flash cards went with it. This consisted of all the new words in the book plus any old ones that contained problem braille characters.

### Follow-Up

An assessment of the vocabulary in June of that year revealed recognition of most of the words on the Dolch Basic Vocabulary List. At that time the decision was made to transfer A. to the neighborhood public school. It was agreed by everyone concerned that second-grade placement would be most beneficial. Tutoring sessions of one to two hours per week took place throughout the summer in order to teach the rest of the basic vocabulary list, and assure stability of the learning that had taken place during the school year. When A. entered her new school in September, she was able to take instructions on a second-grade level in the Lippincott Basal Reading Series and to read independently many of the trade books available in her classroom, particularly those of the "I Can Read" variety. Reinforcement of the more difficult characters in the braille code continued during the braille lessons and new short-form words were taught as they appeared. Emphasis at this point was placed on skills necessary for using commercial educational materials.

Comprehension materials such as those published by Barnell-Loft were used in great abundance. Reading instruction was divided between the classroom and braille lessons, with instructions on the Perkins Braille now receiving a higher priority. The major reading problem that year was providing A. with an adequate supply of books on her level to satisfy her hunger for independent reading matter.

At the end of the third grade, the Metropolitan Reading Test was administered from a braille transcription with print notations. The test was given by the resource room teacher at the school A. was attending at that time. Her scores ranged from 4-2 to 5-9. At the time of this writing, A. is in the second from the top reading group in her school's fourth grade. She is rarely troubled with a reversal problem, but on the few occasions that she is, her skill in using context clues takes over. She happily compares notes about Nancy Drew books with her sighted classmates and has read many other books as well, including some related to the content area that her class is studying. This ability to keep up with her sighted peers is gratifying, of course, but an even greater proof of success of this program is that A. is more than a good reader—she's a youngster who truly loves to read.

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I certify that the statements made by me above are correct and complete. (Signed) Mary Ellen Mulholland, Managing Editor.

Review

**Out of Sight: Ten Stories of Victory Over Blindness**, by Al Sperber. Boston: Little, Brown and Company, 1976. 259p. \$7.95.

Reviewed by Dava Grayson

*Out of Sight*, the title taken from the author's radio program of the same name, grew out of Al Sperber's interviews with nine blind persons as well as his own experiences as a blind individual. Those who discuss their lives, how they lost their vision, their previous attitudes towards blindness, current feelings regarding their own visual impairment, and attitudes of the sighted public, include an accountant, a judge, a nun who teaches sighted children, a golf champion, a sculptor, the director of the New York City Office for the Handicapped, two civil servants, and an author and BBC moderator who pursues the hobby of mountain climbing. Sperber himself, a jazz musician before he became blind, runs his own telephone promotion business in addition to hosting a radio program for and about blind persons and also finds time to

involve himself in a variety of activities for the benefit of visually impaired and other handicapped persons.

He has written the book for two audiences: the sighted, so that they may abandon their stereotypes and see the world from the blind person's point of view, and the blind, who, he believes, have a lot to tell each other. *Out of Sight* is, in other words, "a kind of tour, through the world of blindness." Thus, while the author continually emphasizes that the persons he has interviewed are all very different from each other and do not share the same life goals, at the same time he shows us how they must all live with the attitudes of a sighted society, often based upon stereotypes that have little or nothing to do with the realities of visual impairment.

The book succeeds in at least one of the purposes for which it was intended: it enables the sighted reader to see blind persons as individuals who are fellow human beings quite capable of pursuing their chosen professions albeit in a world that often sets obstacles in their paths. (Although I do not presume to speak for the blind, I would assume that the experiences of Sperber and his friends will also prove meaningful to the visually impaired audience.) However, for those of us who have already done

considerable reading in this area, to whom it comes as no big surprise that blind persons can lead productive and independent lives, *Out of Sight* is not the "startling and thought-provoking experience" Sperber believes it to be. It is merely a confirmation of what we have known for some time.

A final word re criticism of agencies for the blind: again there is nothing particularly new here or, as Pogo might have said, "We have met the American Federation (sic) of the Blind and they is us."

Ms. Grayson is a New Outlook editor.

**The Existential Pleasures of Engineering**, by Samuel C. Florman. New York: St. Martin's Press, 1976. 160p. \$7.95.

**Medical Nemesis—The Expropriation of Health**, by Ivan Illich. New York: Pantheon Books, 1976. 294p. \$8.95.

Reviewed by C. Michael Mellor

Engineering and medicine are not often juxtaposed, yet good health depends largely on sound engineering, while medicine itself is regarded by some—emphatically not by Ivan Illich—as an exercise in engineering in which the bodily





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plumbing and wiring are kept in order. Both engineering and medicine have a profound effect on the way we live, and both books demand that we re-examine our attitudes toward these professions. Engineering is nowadays being widely attacked—undeservedly, says Samuel Florman, a strange hybrid of engineer and litterateur. Medicine, on the other hand, still garners prestige—unmerited prestige, claims the gadfly priest, Ivan Illich, whose writings on contemporary issues seem guaranteed to raise the hackles.

Florman deplores the current anti-technology trend and, often quoting the classics and even sacred books, scathingly attacks the "antitechnologists" who so mightily pollute our ability to think straight about engineering. For, he argues, engineering is one of the highest achievements of that most complex of nature's creations, the human brain. Engineering has, in the past two hundred years, improved the lives of countless millions because it has removed so much fear—fear of starving, fear of cold, fear of the elements, fear of disease. For, as Illich points out, though doctors often claim the credit for lower mortality rates, improvements in health and longevity have come from clean water supplies, sanitary disposal of waste, better diet, and better housing, rather than from the ministrations of doctors.

Surprising though it may seem, engineers have even played a part in uplifting the spirit of man—not only by such remarkable achievements as putting a man on the moon and sending photographs from Mars, but even in the breathtaking beauty of bridges, dams, ships, locomotives, and, to many people, automobiles. Is it too much of an exaggeration to compare these achievements with the pyramids, or (even) the towering magnificence of a gothic cathedral?

### Homer Praised Craftsmen

Florman gives quotations from Homer, in which the blind poet lovingly, almost sensuously, describes the products of craftsmen (the engineers of ancient times). And an often unrecognized theme in the Old Testament is that prosperity must be based on a vigorous technology and that the engineering impulse comes to man as a gift from God—a gift that can build His holy kingdom on earth.

Thomas Tredgold's classic definition (1828), "Engineering is the art of directing the great resources of power in nature for the use and convenience of man," has been almost forgotten. Yet as recently as 1950 most engineering organizations had formally endorsed the Fundamental Principles of Engineering Ethics drafted by the Engineering Council for Professional Development, which state that the engineer "will use his knowledge and skill for the advancement of human welfare."

It is now a popular stance to blame technology for most of mankind's undoubtedly urgent and potentially fatal problems: for pollution of water and air, noise, dirt, "unsafe at any speed" automobiles, oil tankers that explode, even for crime in the streets and alienation, because, it is said, technology has deprived man of the essential contact with "Nature." Even within the "blindness system" there seems to be a feeling that the engineers are too often car-



rying out esoteric experiments with even more esoteric devices that will ultimately not benefit blind or visually impaired people. Undoubtedly some of this work will prove barren. But it is only from the skills of engineers that new sensory aids, for example, will be produced. Who else will do it? Maybe some day direct stimulation of the brain will give many blind people a useable substitute for vision; reading machines are already on the cards. And is it not the engineers who will have to be persuaded to design and construct streets, buildings, and public transportation systems that incorporate features to help the visually impaired—or at least not to include potential obstacles?

### Engineering Strengths and Limitations

If asked the right kinds of questions, engineers will come up with answers. If you ask, "Can we put a man on the Moon?" engineers will do it. Equally, if you ask, "Can you build a bomb to destroy the Earth," the answer is also, "Yes." The trick is to know what engineering's capabilities and limitations are and to think profoundly about what you ask it to do.

There are many difficult problems within the "blindness system" that engineering cannot solve. For instance, an increasingly high proportion of the visually impaired population consists of older people, and their problems are likely to be those that, to our shame, afflict most old people—lack of money, and feelings of isolation and loneliness as family moves away or rejects them and life-long friends die. The engineer cannot provide substitutes for companionship, but he might, by means of communication technology, ease the loss. Engineers cannot solve the eternal problems of human existence, any more than by building bridges, highways, roads, ships, and planes, they can give a society a sense of direction. And engineers should not be made scapegoats because 20th Century man has failed to establish Utopia.

Engineers are not gods, but neither are they demons. They have made mistakes, perhaps they have been over-enthusiastic; perhaps they have been guilty of *hubris*, the overweening pride that in Greek myths led the gods to inflict *nemesis*—vengeance—on such people. Illich has no doubt that the medical system has indeed shown *hubris*—its members have tried to be heroes, not human beings. But at least the failings of the engineer are visible and the damage done (so far) is repairable. Whereas damage inflicted by the "health system" is subtle and pervasive. And since the wounds are inflicted in the name of health, it is difficult to attack the miscreants without being accused of being anti-health. The junkie does not love the person who tries to deprive him of his fix.

Ivan Illich opens with a startling declaration: "The medical establishment has become a major threat to health." And he goes on to present convincing evidence—with footnote after footnote (a deliberate assertion of his right to break the monopoly that academia has exercised over all small print at the bottom of the page). He challenges the "engineering model" of health management, which implies that health is a commodity to be produced and which attitude paralyzes healthy re-

sponses to suffering, impairment, and death. "Health designates a process of adaptation. It is not the result of instinct, but of an autonomous yet culturally shaped reaction to socially created reality. It designates the ability to adapt to changing environments, to growing up and to aging, to healing when damaged, to suffering, and to the peaceful expectation of death. Health embraces the future as well, and therefore includes anguish and the inner resources to live with it."

### Adaptability Undermined

This ability to adapt is seriously undermined by professional medicine, which lets the word get around that for every ache, twinge, pain or fever, for every disease, there is some available remedy. And if only society were better organized these remedies would, and should, be available to all. Then, at last, society would be "healthy."

The myth that doctors can replace priests (read non-medical healing) can be traced, Illich asserts, to the French Revolution and it is a myth that is now taking its toll. Most obvious, even to the casual observer, is the bad effect on health of the remedies now available—the surgery and drugs, or "scalpel and poison" as Illich dramatizes them. These all produce side-effects that in turn demand further intervention—and so on in infinite regression. More subtle, but more significant, is the fact that medical intervention distracts from the real problems—from the tedious work, loosening family ties, ruthless competition, poor diet (is it not only what we eat, but also the way we eat?)—that are making people sick.

It is a truism that experts "solve" problems in terms of their own expertise—and therefore never solve anything. And the health care system is one of the ways in which people are now tending to live their lives heteronomously (managed by others—the experts) rather than autonomously. "Beyond a certain level, the heteronomous management of life will inevitably first restrict, then cripple, and finally paralyze the organism's nontrivial responses, and what was meant to constitute health care will turn into a specific form of health denial."

### Lessons For Blindness System

It is to be hoped that the blindness system is already learning the lessons Illich is teaching. For, as Robert Scott (to whose *The Making of Blind Men*, Illich refers) was already pointing out in 1969, being accepted among the blind and behaving like a blind person are not determined solely, or even mainly, by degree of visual impairment. "For most of the 'blind'," says Illich, "it is above all the result of their successful relationship to an agency concerned with 'blindness'." In other words, like the doctors and hospitals that make people sick, the "blindness system" instead of helping "blind" people, confirms them in an assigned role. This is an extreme position that few would accept without reservation, but the point is well taken.

The trouble is that doctors have somewhere along the way become more concerned with sickness rather than with people who are sick. By analogy, the agencies responsible for services for the blind must be alert to the danger of lapsing into

service to the abstract concepts of "blindness and visual impairment" rather than to blind and visually impaired persons.

### Consumerism Irrelevant

Consumerism is not the answer, Illich argues. For it is still concerned with the notion of give and take—it wants to improve the quality of what is given, whereas the real need is to wean people away from dependence, to defend a person's right to "untutored freedom to take or leave the goods." What is needed is a great reduction of the total output, not simply technical improvements in the wares offered.

Elsewhere Illich has roundly condemned the counterproductive results of modern overproduction—time-consuming acceleration of traffic, static in communication, education-induced incompetence, uprooting caused by housing development, and destructive overfeeding. The implications for the "blindness system" and for us as individuals, demand attention.

*Mr. Mellor is a New Outlook editor.*

## Editors' Choice

### Siamese White

By John Melliush

My son, living in Thailand, tells me that, driving home one day through a crowded one-way street in Bangkok, he noticed an old gentleman with a white stick waiting patiently at the pavement edge. "It could have been you, Dad," he writes, and so on a sudden impulse he drew up and by opening both his car doors wide effectively brought all traffic to a standstill. Ignoring the outburst of furious shouting and hooting from the rear, he hurried to the old gentleman and offered to see him across the road.

It was all very unfortunate. No—he wasn't blind. No, the white stick was something he'd just bought to replace a broken barstool leg. No—he didn't want to cross the road, he was just waiting for his wife to pick him up in the car.

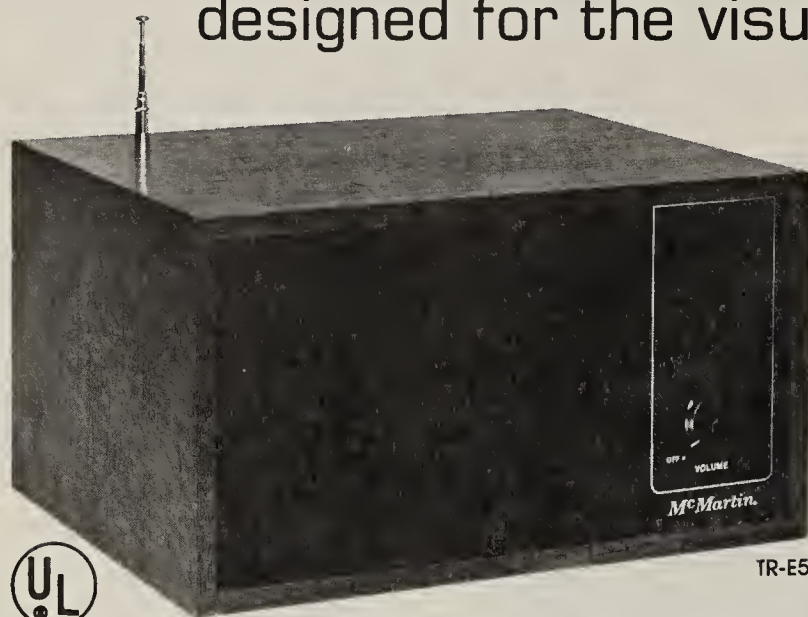
By now hell had broken loose along the road. "For pity's sake," my boy urged, "let me take you across the road or I'm going to get lynched." Good sport that he was, the old chap consented and, although my son felt that his companion's tightly-shut eyes and melodramatic road-tapping with the stick tended somewhat towards hamming up the act, nevertheless it worked. The 'tumult and the shouting died' and the crossing was completed in an almost cathedral-like silence.

In the rear mirror my son caught the last glimpse of his partner in deception awaiting his chance to get back again across the road, and leaning patiently on his barstool leg.

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# Letter to the Editors

To the Editors:

I am very interested in your article "The Cranmer Abacus and Its Use in Residential Schools for the Blind. . .," published in your November 1975 issue.

I am visually impaired and five years ago I was taught how to use the Cranmer Abacus. From the beginning I was amazed and puzzled by the use of two different kinds of beads, four one-unit beads and one five-unit bead; and by the way multiplications and divisions are performed.

It seems to me it will be easier to understand and faster to calculate if we use in each column nine-unit beads only. I made several prototypes of this abacus on which I perform all my computations. The following example shows why the computations are easier and faster in the new abacus.

In the Cranmer Abacus to add four and three the addition is performed in two steps: set one five-unit bead and clear two one-unit beads. To read the total the blind person has to note with his finger the existence or non-existence of any bead upon or under the horizontal bar, then he adds the one five-unit bead to the two one-unit beads to read the total seven. The reading of the total is also performed in two steps.

With the new abacus that has nine-unit beads in each column, the beads lose value when pushed against the upper side of the abacus frame and acquire value when they are pushed against the lower side. In this abacus to add four and three we simply set four more beads to the three already set and we read immediately the total seven. The addition is performed in one step and the reading of the total is also in one step.

Furthermore, the nine beads in each column are divided in three subgroups of three beads each. The upper and lower ones are round and the ones in the middle are of a different shape. In this way to read a number it is sufficient to feel the two or three upper beads to know at once the number of beads set.

Occasionally I have taught computations on the new abacus. To calculate additions or subtractions there are no problems. For multiplications and divisions I use exactly the same way used by a sighted person to perform these operations with a pencil on a paper. The answers are set naturally at the right of the abacus as in the additions and subtractions; the ones in the column of ones, the tens in the column of tens, etc., without the confusing rules of the Japanese Abacus. I explain to the students how to do every step and especially why it is done without puzzling rules.

I hope the suggested new abacus will interest some non-profit organizations for the blind. I will feel gratified and proud if my abacus can help, even in the smallest way, other visually impaired individuals.

Joseph Wanis  
San Diego,  
California

# Current Literature

*A report of significant new additions to the M. C. Migel Memorial Library of the American Foundation for the Blind, prepared by Elaine M. Siegel, librarian. These materials may be borrowed from the library.*

## Assessment

**Measures of Psychological, Vocational, & Educational Functioning in the Blind & Visually Handicapped**, by Geraldine Scholl and Ronald Schnur. American Foundation for the Blind (15 West 16th Street, New York, New York 10011), 1976, \$5.00. The manual provides descriptions (not evaluations) of measures of intellectual functioning, educational measures, preschool measures and measures of social functioning, vocationally oriented measures, objective personality measures, and projective personality measures. Each annotation is followed by bibliographical references and availability information. Recommended readings and general references are included at the end of the text.

**Vocational Assessment of Non-Academic Blind Adolescents**, by W. Cunliffe. *The New Beacon* (Royal National Institute for the Blind, 224 Great Portland Street, London W1N 6AA, England), Vol. 60, No. 705, January 1976, pp. 1-7. Article based on paper presented at the European Regional Conference of the International Council for Education of the Visually Handicapped, August 1975, Ljubljana, Yugoslavia. The author, Principal of the Hethersett Vocational Assessment Centre for Blind Adolescents, England, addresses such general issues as the need to inform students of the types of work available and the requisite skills, and the limitations of standardized tests. He details some of the test batteries administered at Hethersett in such areas as machine operating, industrial assembly, woodwork, typing, pre-telephone, braille, general intelligence, mechanical arithmetic, spelling, mobility, social techniques, and housecraft. Other topics covered are social relationships, work experience, parental attitudes, and the overall assessment process and vocational guidance.

## Causes of Blindness

**The Association of Female Hormones with Blindness from Diabetic Retinopathy**, by Karen K. Yuen and Harold A. Kahn. *The American Journal of Ophthalmology* (Ophthalmic Publishing Company, 233 East Ontario Street, Chicago, Illinois 60611), Vol. 81, No. 6, June 1976, pp. 820-822. In this study, rates of blindness from diabetic retinopathy for persons in 14 states of the Model Reporting Area were ascertained in five-year intervals by sex. Diabetic males younger than 45 years of age had a higher rate of diabetic blindness than females of the same age. For ages 45 and over, however, the risks of blindness among diabet-

ics were approximately equal for men and women. Thus, this research supports the hypothesis that the presence of female hormones improves the prognosis in diabetic retinopathy.

## Deaf-Blind

**Vision Stimulation for Low Functioning Deaf-Blind Rubella Children**, by Carmella Ficociello. *Teaching Exceptional Children* (Council for Exceptional Children, 1920 Association Drive, Reston, Virginia 22091), Vol. 8, Spring 1976, pp. 128-130. The author, educational specialist at the South Central Regional Center for Deaf-Blind Children, Callier Center for Communication Disorders, Dallas, Texas, briefly discusses the eye defects present in deaf-blind rubella children, and reviews the background of vision stimulation programs. The article focuses on methods for evaluating and assessing remaining color vision, figure-ground discrimination, eye-hand coordination, and perceptual skills, as well as the abilities to attend to light, track moving objects, and scan visually. An outline for a sample stimulation program, which should be individualized and incorporate visual, motor, and language goals, is included.

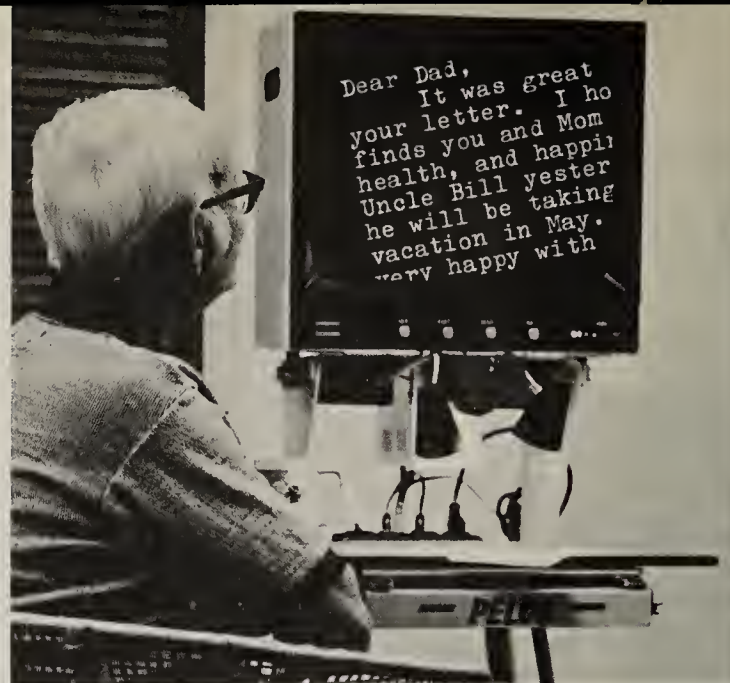
## Education

**Language Arts for the Visually Impaired Child**, by Elaine H. Wagener. *Language Arts* (National Council of Teachers of English, 1111 Kenyon Road, Urbana, Illinois 61801), Vol. 53, April 1976, pp. 432-434. The author describes an instruction system combining opportunities for tactile exploration with exposure to language concepts. Pupils handle collections of fabrics, shells, or tools, for example, in conjunction with or followed by oral descriptions. This activity is designed to promote concept development and accurate use of language, and to enhance descriptive skills and discrimination power. Dramatizations and creative writing are outgrowths of this experience. The article also mentions methods of stimulating the development of listening skills.

**An Analysis of the Specialized Functions of Teachers of the Visually Handicapped in Public Day School Programs in the New England Area: A Pilot Study**, by Susan Jay Spungin. Doctoral Dissertation, Columbia University, Teachers College, 1975. 224p. Study intended to serve as a pilot for a national study. A questionnaire was designed, and completed by 79 teachers of visually handicapped children in public day school programs in the New England area. Differences in the roles and job functions of itinerant teachers, resource room teachers, and teacher-consultants were determined and contrasted; their functions were also compared to a list of competencies developed, during the course of three national meetings, by coordinators of teacher preparation programs for teachers of the visually handicapped. The study suggests that teacher preparation curricula should provide more specialized training and courses in such currently neglected areas as sex education and non-verbal



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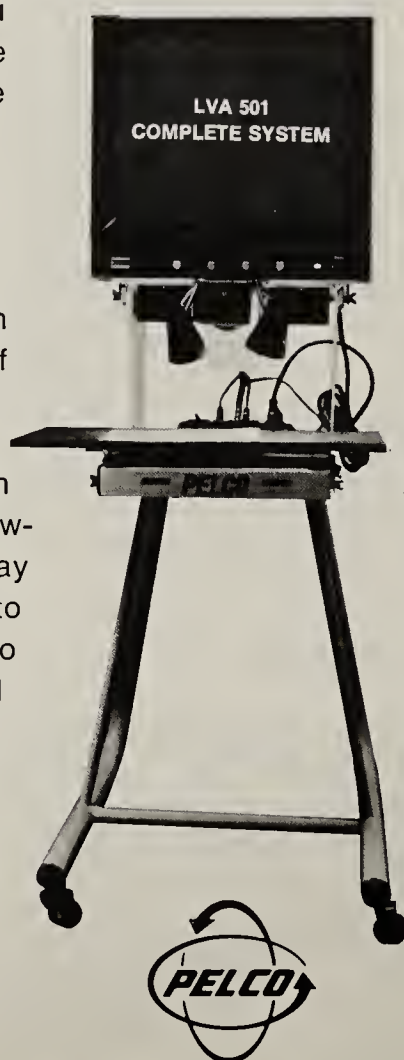
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## Industrial Arts

**The Industrial Education Program at Perkins**, by William W. Howat. *The Lantern* (Perkins School for the Blind, Watertown, Massachusetts 02172), Vol. 45, No. 2, March 1976, pp. 5-11. The author, head of the industrial education department at Perkins School for the Blind, Watertown, Massachusetts, describes the elementary and junior and senior high school industrial education curricula. The programs are designed to develop daily living skills, avocational skills for leisure time pursuits, and to provide career information, basic training, and on the job experience in several industrial occupations. The department encompasses woodworking, metal work, machine shop, power mechanics, home mechanics, photo-graphics, weaving and crafts, caning, ceramics, building and grounds maintenance, piano technology, production-woodworking, and mechanical drawing.

## Libraries for the Blind

**Music for the Blind and Physically Handicapped from the Library of Congress**, by Eyler Robert Coates. *American Music Educator* (Music Teachers National Association, 408 Carew Tower, Cincinnati, Ohio 45202), Vol. 25, February/March 1976, pp. 21-24. The author, Head of the Music Section, Division for the Blind and Physically Handicapped, Library of Congress, has written this article to familiarize music teachers with the resources available to their blind students. The Library maintains one music collection in Washington, D.C. rather than a network of regional depositories. The Music Section provides braille music scores and braille books about music, music instruction on cassettes and on records, music books on records and on magnetic tape, large-print music scores, music periodicals in braille and on records, reference services in all areas of music, and training of volunteer music transcribers.

## Orientation & Mobility

**Mobility for the Blind Child**, by Cynthia Diane Dickstein. *The Exceptional Parent* (Psy-Ed Corporation, 262 Beacon Street, Boston, Massachusetts 02116), Vol. 6, No. 2, April 1976, pp. 24-27. The author, an orientation and mobility specialist, briefly traces the history of mobility instruction, noting the opposition of professionals and parents to teaching children to use the long cane. She then describes an experimental mobility training program, sponsored by the Braille Institute of America in Los Angeles, for blind and partially sighted children aged eight to twelve. The training included basic safety measures, cane techniques, travel on stairs, and in the children's neighborhoods. Parents and

students had favorable reactions to the training, now offered permanently at the Institute.

**A Sensory-Integration Program for Blind Campers**, by Roselyn Van Benschoten. *The American Journal of Occupational Therapy* (American Occupational Therapy Association, Inc., 6000 Executive Boulevard, Suite 205, Rockville, Maryland 20852), Vol. 29, No. 10, November-December 1975, pp. 615-617. Occupational therapy pilot program introduced into a six-week session at Sunnybrook Day Camp, sponsored by the Delaware Curative Workshop, Wilmington. Eighteen legally blind campers aged 6-21 were involved in the therapy program, which included screening and assessment and specially tailored treatment sessions formulated through consultation among occupational therapists, camp counselors, special educators, and arts & crafts instructors. The activities stressed individualized therapy for balance, posture, movement, spatial orientation, and body form concepts. Results showed lessened fear of movement and improved integration of reflexes for some campers. Some parents arranged for their children's therapy to continue through the fall and winter.

## Reading

**Report on the Richard King Mellon Foundation Optacon Training and Purchase Subsidy Program (Pittsburgh, Pennsylvania Area)**. American Foundation for the Blind (15 West 16th Street, New York, New York 10011), December 1975, 90p. Evaluation performed by the American Foundation for the Blind, based on trainee interviews conducted from November 1974 to January 1975. The study involved 233 adults and children enrolled in Optacon training programs at Pittsburgh agencies for the blind and Pittsburgh schools. The delivery system and financing pattern utilized in the Pittsburgh program are described, and statistics on user response, which was mostly favorable, are presented. Recommendations for future programs include Optacon training as a routine part of the rehabilitation and education of blind persons, central coordinating organizations in logical geographical areas, specialized training for Optacon teachers, provisions for "brush-up" training, and inclusion of deaf-blind individuals in Optacon training programs.

## Recreation

**Skiing Without Sight or Sound**, by Rich Johnson. *NAT-CENT News* (Helen Keller Center for Deaf-Blind Youths and Adults, 111 Middle Neck Road, Sands Point, New York 11050), Vol. 6, No. 4, July 1976, pp. 26-31. This article, in large type, reports on the operations of the Visually Impaired Ski Program, a cooperative effort of the Skyee Ski School and Community Services for the Blind in Seattle, Washington. Blind, partially sighted, and deaf-blind students learn to don their own equipment, travel the chairlifts and rope tows, and receive ski instruction and practice. Specially adapted teaching methods are briefly discussed.

# Publications of Note

*A classified listing of books, articles, directories, pamphlets, and other material of interest to the readers of the New Outlook for the Blind, prepared by the editors. Please write to the source listed in each entry if copies or more information is desired; the materials are not available from the New Outlook or the American Foundation for the Blind.*

## Agency Administration

**Information and Referral**, by Anthony M. Salvatore. *The Social and Rehabilitation Record* (Social and Rehabilitative Service, MES Building, Room 5327, Washington, D.C. 20201), Vol. 3, No. 2, May 1976, pp. 21-22. Information and referral is often taken for granted as a simple, two-step process. In this article the author describes the complexity and importance of an I & R system.

## Aids, Devices, & Equipment

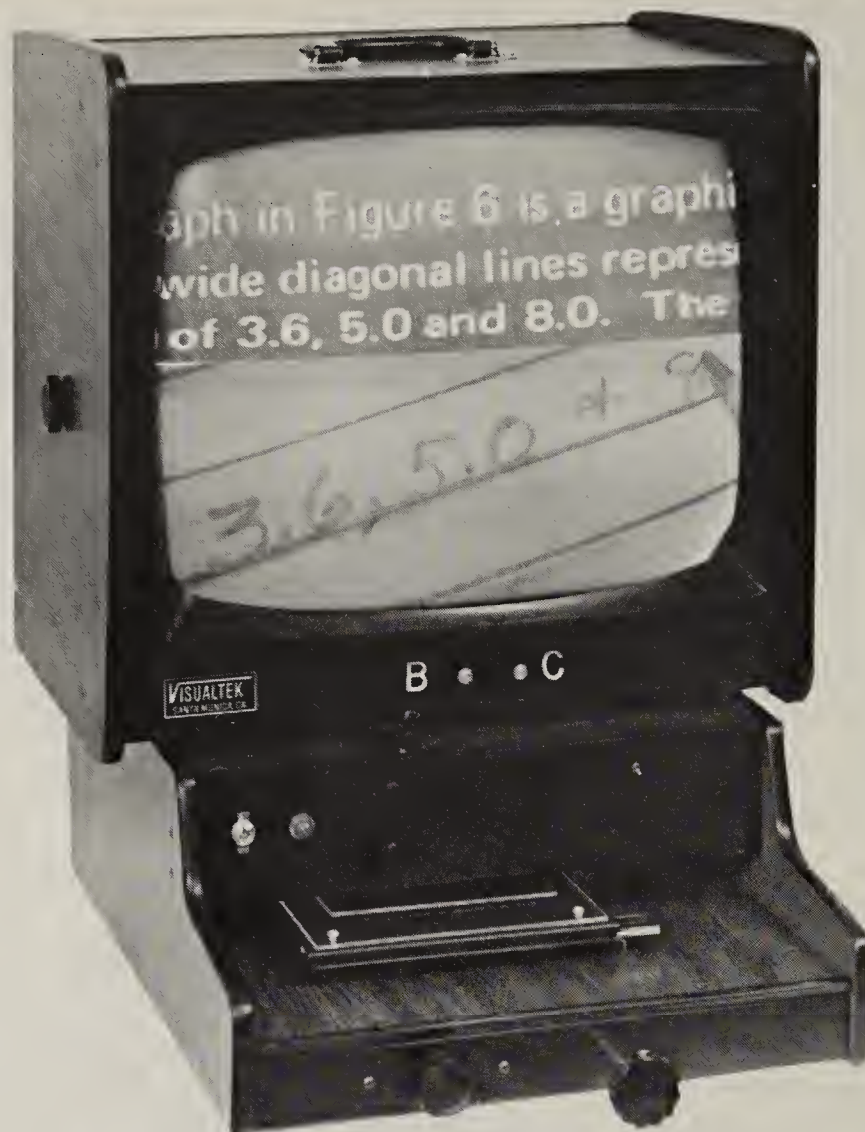
**A Braille Translator**, by Edward H. de Jong. Massachusetts Institute of Technology, Cambridge, Mass. January 1976. 67 p. (B. S. Thesis.) The main text documents a generalized minicomputer program written in ANSI FORTRAN for ink print to braille transcription. Output is standard Grade II English braille (American version), with the following exceptions: rules involving syllable division or referring to sound of a word; words not divided between lines; and sections 35, 37, 38b, 38d, 40, 41, 43, and 47 of the APH publication describing braille rules and their application. To increase transcription speed, which is about one second per input character, would imply rewriting the program in assembly language; if done, this would reduce program size by a factor of two or three times, and increase speed by about ten times. An interesting contribution to wider utilization of ink print to braille conversion on minicomputers that are becoming more and more widely available; and with input of compositor's tape, the possibility of local generation of braille transcriptions at relatively low cost and heightened timeliness.

## Attitudes & Adjustment

**Please Know Me as I Am**, by Margaret E. Cleary. Jerry Cleary Co. (25 Ronald Road, Sudbury, Mass. 01776), [1975]. A guide for teachers to help children understand the special needs of handicapped children. Includes a list of resources and an extensive annotated bibliography of children's books about exceptional children.

**When It's Hard to See**, by Susan C. Farkas, photographed by Steven York. Vision Program of the Prince George County Public Schools (Capitol Heights Special Center,





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6037 Central Avenue, Capitol Heights, Maryland 20027), 1975. A children's picture story book developed to help the young child understand the special problems of visually impaired children and the skills they learn to overcome them.

## Audition

**Some Acoustical Aspects of Man-Machine Coupling**, by Frederick A. Webster and Hillary Martin. *Behaviormetric*, Vol. 3, No. 2, 1973, pp. 119-133. A review of research and applications of visual to auditory transformations of information in the design of control systems for aircraft, including the Project/FLYBAR system developed during World War II, which was oriented toward three-dimensional control of aircraft by auditory references. Such applications grew out of both animal sonar studies and fundamental psychoacoustic research, and applications to guiding devices for the blind are touched upon. In an (unpublished) Appendix to this paper, the interesting control dynamics associated with the performance of a blind tennis player are considered.

## Diabetes

**A Comparison of Enzyme Reagent Strip Tests for Lacrimal Glucose**, by J. G. Daubs. *American Journal of Optometry and Physiological Optics* (American Academy of Optometry, 115 West Broadway, P.O. Box 565, Owatonna, Minnesota 55060), Vol. 53, No. 5, May 1976, pp. 232-235. Lacrimal glucose screening for diabetes mellitus is increasingly being used in optometric practices. This paper compares several commercial glucose test kits for cost, reaction range, and reaction time.

## Education

**A Comparison of Parent and Teacher Perceptions of the Behavior of Exceptional Children**, by Sol Ribner, Betsy Bittingmaier, and Ethel T. Breslin. *The Journal of Educational Research* (Heldref Publications, 4000 Albemarle St., N.W. Washington, D.C. 20016), Vol. 69, No. 9, May 1976, pp. 345-348. This study examines the differences between parents and teachers perceptions of the exceptional child before and after a series of parent-teachers meetings. Before the meetings parents tended to rate their children slightly higher. Since parents did not have the same exposure to average children that the teachers had, parents tended to see the average child as having fewer desirable traits than their own child. After the meetings parents had restructured their perceptions to become more similar to those of the teachers.

## Employment

**The Placement Process in the Rehabilitation of the Severely Handicapped**, by William M. Usdane, Ph.D. *Rehabilitation Literature* (National Easter Seal Society, 2023 W. Ogden Avenue, Chicago, Ill. 60612), Vol. 37, No. 6, June 1976, pp. 162-167. While

overall services to the handicapped have been continuously upgraded and made more effective through the years, actual job placement at the end of the rehabilitation process has lagged behind. The author calls for a restructuring of the rehabilitation service delivery system so that job placement may be given continued consideration throughout the rehabilitation process.

## Rehabilitation

**Gyogy-Pedagogiai Alap-Ismeretek (Special Education)**, by Illyes Sandor. Tankönyvkiado, Budapest, Hungary, 1976. (Available from the author, Department of Psychology, Training College for Teachers of Handicapped Children, 1443 Budapest, Pf. 146, Hungary.) This book provides a general description of the care, education, and rehabilitation of handicapped persons. A detailed statistical survey provides an evaluation of the present status of the different institutions for the handicapped in Hungary. Included are summaries of the text in English, German, and Russian.

## Research

**Research Directory of the Rehabilitation Research and Training Centers**. U.S. Rehabilitation Services Administration (Office of the Assistant Secretary for Human Development, Department of Health, Education, and Welfare, Washington, D.C. 20201), 1975. Contains abstracts of 361 research projects from 19 rehabilitation research and training centers, including research objectives, methodology, progress, and findings.

## Transportation

**Adapting Public Transportation for the Handicapped—Summary**. HAKO-utredningen (Commission on Adapting Public Transport for the Handicapped), Statens offentliga utredningar, Kommunikationsdepartementet, Stockholm, Sweden, 1975. This report is a summary of a major study of public transport undertaken in Sweden. The report emphasizes that since almost every individual is impaired to some extent at one time or another in his life through age, illness, or injury, public transportation should be the concern of the whole society. Accordingly, the report outlines the case for governmental regulation of the design of the range of public transportation, from individual taxis to bus, rail, and air systems. Included are specific suggestions for modifying present designs and developing new ones.

## Vision

**Is There Another Way of Seeing? Medical World News** (1221 Avenue of the Americas, New York, N.Y. 10020), Vol. 17, No. 10, May 3, 1976, pp. 74-75. This article reports on the recent studies on the phenomena of "blindsight" in patients who have cortex damage.

# News in Brief

■ The Migel Medal, presented annually by the American Foundation for the Blind (AFB) for outstanding service in work for the blind, was awarded this year to Mr. Robert Barnett, former executive director of the Foundation and Carl Kupfer, M.D., director of the National Eye Institute. The awards were presented October 28 at AFB's headquarters in New York.

Mr. Barnett is known both generally and in professional circles for his leadership in work for the blind. For 25 years, until his retirement in 1974, Mr. Barnett was the executive director of both the American Foundation for the Blind and the American Foundation for Overseas Blind. He was recommended for the posts by many leaders in work for the blind, including the late Helen Keller, then a consultant to both Foundations.

"During his tenure the AFB provided leadership in many vital areas in work for blind persons including the integration of blind children into public schools alongside their sighted peers; the mobilization of forces to provide comprehensive services and programs for elderly blind persons; the consolidation of teacher training programs and special curricula for teachers working in the field of blindness, and the growth of technological developments, especially sensory aids, designed to help blind persons the world over lead more independent lives," Loyal E. Apple, executive director of AFB, noted in making the announcement.

Mr. Barnett began his career in the field of blindness in 1942 by serving as a volunteer publicity consultant to the then newly created Florida Council for the Blind. In 1944 he became the Council's supervisor of employment and in 1945 its executive director.

Mr. Barnett is a past president of the National Council of Executives of State Agencies and a past vice president of the World Council for the Welfare of the Blind for the North, Central, and South American regions. Among the organizations he has been affiliated with are the President's Committee on Employment of the Handicapped, the Canadian Council of the Blind and the Blinded Veterans Association. He is currently a consultant to both AFB and AFOB.

Dr. Kupfer received the award for his leadership in research in the field of blindness prevention in the United States.

Since 1970 Dr. Kupfer has been the director of the National Eye Institute, Bethesda, Md., which was created as part of the National Institutes of Health in 1968. The Institute's focus is on research to improve the diagnosis, prevention, and treatment of visual disorders.

Under Dr. Kupfer's leadership, the Office of Biometry and Epidemiology was established at the Institute as well as the Office of Intramural Research and a Laboratory of Vision Research. In 1972 a nationwide cooperative research study to evaluate new methods of treating diabetic retinopathy was initiated.



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Previously, Dr. Kupfer was professor and chairman of the ophthalmology department at the University of Washington School of Medicine in Seattle. He graduated from Johns Hopkins Medical School in Baltimore and completed his internship and residency at the Wilmer Eye Institute, Johns Hopkins Hospital.

"Dr. Kupfer's numerous accomplishments in ophthalmological and neuro-ophthalmological research have had far-reaching effects on the lives of blind and visually handicapped people worldwide," Mr. Apple said.

Dr. Kupfer is on the editorial boards of *Investigative Ophthalmology* and the *American Journal of Ophthalmology*. He is chairman of the Projects and Priorities Committee, International Agency for the Prevention of Blindness and a member of AFOB's Executive Committee, and the Scientific Advisory Committee of Fight for Sight.

His professional affiliations include the American Academy of Ophthalmology and Otolaryngology, the American Ophthalmological Society and the Association for Research in Ophthalmology, and the American Physiological Society.

■ *Lumière par le Son*, a French magazine for blind consumers, is available on open reel tape and cassettes free of charge to any French-speaking blind person of any country. For a subscription write to Lumière par le Son, 13 rue des Ares, 31240 L'Union, France.

■ The Georgia Rehabilitation Center is in the process of constructing a Rehabilitation Museum. The museum will cover the 55-year history and growth of the field of rehabilitation. Donations of old equipment, early wheelchairs and braces, newspaper articles, letters, books, and brochures are appreciated. For information or to make a donation, contact Beverly Bulloch, Museum Committee, Warm Springs Rehabilitation Complex, Warm Springs, Georgia 31830.

■ The sophomore class of Philipsburg Osceola Area High School, Pennsylvania, which includes 229 students, participated in an essay contest on the theme "The Importance of Sight." The contest was sponsored by Owen Curtis, a member of the American Council of the Blind and the National Federation of the Blind, in cooperation with the Moshannon Valley Committee on Employment for the Handicapped. The essays covered such topics as the causes of blindness, the services and aids available to blind persons, and the attitudes of the sighted toward the blind. The \$200 award for the contest was shared equally by 20 students.

■ The third annual "Ski for Light" ski touring event for blind persons will be held in Woodstock, Vermont, January 30-February 6, 1977. Blind individuals from the United States and Canada are invited to participate in the event. Prior skiing experience is not necessary since a qualified instructor will be assigned to each indi-

vidual. All equipment will be provided to participants free of charge. Participants must be 18 years of age or over. For further information write to: Ski for Light 1977, % Einar Bergh, Norwegian Information Service, 825 Third Avenue, New York 10022.

■ A major consumer eye care study, "Optical Illusion," has just been released by San Francisco Consumer Action. It is sharply critical of many industry practices. After surveying prices and quality standards of 105 Bay Area eye care professionals, it found an astonishing lack of precision, plus large price spreads for identical goods and services. "Optical Illusion" examines the relationships among the different eye care specialists and concludes that professional and political conflicts obscure the consumer interest. The report charges costly duplication of services and internecine lobbying in the state legislatures. Huge differences were found in prices for the same goods and services. The cost of the same pair of eyeglasses ranged from \$20 to \$66, and a basic eye exam anywhere from \$12 to \$40. A pair of hard contact lenses with an eye exam cost from a low of \$120 to a high of \$337. There was little or no relationship between price and quality. Consumer Action's investigation is resulting in the publication of two books. *Optical Illusion*, priced at \$11, is intended primarily for eye care professionals. A shorter book, *Consumer Action's Shopper's Guide to Eye Care*, \$3.50, will give the lay person detailed information about how to shop for eye care, as well as price comparison charts. Both books are available by mail, postpaid, from San Francisco Consumer Action, 26 Seventh St., San Francisco, CA 94103.

■ In recognition of the 40th anniversary of the Randolph-Sheppard Act, Senator Mansfield gave a special tribute to Senator Jennings Randolph during the June 18 session of the U.S. Senate. "The pioneering efforts of Senator Randolph and others have achieved much, much more than the relief of human suffering and despair," Senator Mansfield said. "Their actions and considerations for human welfare have provided the catalyst for many subsequent programs for rehabilitation, education, and health for this Nation's estimated 22 million handicapped persons. In helping the handicapped to help themselves, Senator Randolph acknowledges the premiere role of the millions of disabled Americans who perform splendidly when given an opportunity to demonstrate their ability to contribute to society."

■ Interference with the metabolism of the visual pigment, rhodopsin, may prove to be the common denominator in a number of retinal diseases, according to Dr. Vernon G. Wong, professor of ophthalmology at Georgetown University School of Medicine. Dr. Wong reported to a group of science writers at a seminar sponsored by Research to Prevent Blindness, that rhodopsin isolated from Rhesus monkeys was given intracutaneously to ten monkeys of the same species. Rapid, progressive, irreversible blindness occurred in all of the animals as a result of degeneration of the retina. Dr. Wong stated that as a result of this finding "disorders of retinal degenera-

tion, sympathetic ophthalmia, macular degeneration and iatrogenically induced blindness from drug toxicities will undoubtedly be clarified in future research efforts."

■ *An Index of Blind Mail-Order Business Persons*, edited by Warren E. Sladsky, has been published by the Cleveland Regional Library for the Blind and Physically Handicapped (325 Superior Avenue, N.E., Chicago, Illinois 44114). The *Index* includes such goods and services as games, toys, mobility aids, books, custom sewing and knitting, greeting cards, repair services, tape recorders, hearing aids, labels, etc. It will be updated annually and is available in large type, braille, and recorded forms for \$1.00 per copy.

■ *The Parents' Exchange*, a newsletter for parents of deaf-blind children published by the Southwestern Region Deaf-Blind Center, has been expanded to include parents from all regions. The new *National Parents' Exchange* will include articles by parents, psychologists, medical personnel, and educators, as well as referral and resource information. Information about subscriptions and article contributions are available from Dr. William A. Blea, Project Director, Southwestern Region Deaf-Blind Center, 721 Capitol Mall, Room 621, Sacramento, California 95814.

■ A 16-member committee has been named to assist the federal government's Architectural and Transportation Barriers Compliance Board. The advisory committee represents the handicapped community and its activities; the majority of the members are handicapped and the remainder are professionals and volunteers who work on behalf of handicapped persons. The purpose of the committee is to strengthen the federal anti-barriers campaign by using the knowledge, talent, and experience of handicapped persons, officials of organizations representing the handicapped, and other qualified individuals. The advisory committee's responsibilities will include: 1) giving advice on policies, plans, and proposals for action to make public buildings, housing, transportation, and other facilities accessible, and to eliminate attitudes and behavior that prevent accessibility; 2) proposing legislative and administrative measures to federal, state, and local governments and to public or non-profit agencies; 3) providing input from individuals and organizations that can be helpful; and 4) unifying organizations in support of comprehensive and consistent policies and action.

■ Learning Logic, Inc. (26 Nassau Blvd., Garden City, N.Y. 11530) distributes in cassette form condensations of current best sellers in the areas of self-improvement, motivation, and self-awareness. Catalogs are available from the above address.

■ Major problems affecting physically and mentally handicapped persons will be highlighted in a series of 25 "awareness papers" prepared for the White House Conference on Handicapped Individuals. These papers will be sent to all states to be used as workbooks for the State Conferences which are being held prior to the National



Conference on Handicapped Individuals, May 25-29, 1977. The papers will cover such topics as employment, education, health, attitudes toward the handicapped, environmental barriers, recreation, civil rights, aging, and service delivery systems.

■ A federally funded demonstration program, Client Assistance Project, which has operated in the Los Angeles suburban area for the past two years, will be expanded to serve all the disabled in California. The program is designed to aid disabled people in determining what services are available to them through the state-federal vocational rehabilitation program and how they may obtain these services. It also assists applicants and clients in their relations with projects, programs, and facilities providing services under the Federal Rehabilitation Act of 1973. State Rehabilitation Director Ed Roberts explained that the project is basically an "ombudsman" effort to aid the severely and moderately disabled clients of the Department of Rehabilitation in obtaining proper service. "We now are extending the ombudsman program and making it more aggressive and responsive to the needs of all the disabled," Roberts said. Roberts added that he will select an advisory committee representing all types of disabilities to aid the department in establishing new statewide goals and objectives for the program.

■ In an article on an ancient Mayan city, Palenque, in *Science Digest* (August 1976), it mentions that one of the traits considered a mark of distinction or rank among upper strata of ancient Mayan culture was crossed eyes. The evidence for this is found in the sculpted figures found in the temples at Palenque. The author states that crossed eyes were often achieved by "dangling a wax ball from an infant's forelock."

■ The National Eye Institute has awarded contracts which add six new medical centers to the Diabetic Retinopathy Vitrectomy Study (DRVS). The DRVS is a nationwide controlled clinical trial of vitrectomy, a major new eye operation for preventing and treating blindness due to diabetes. The new clinics bring the total number participating in the study to 13. Now in the final planning stages, the DRVS is expected to enroll its first patients within the next few weeks. The new centers are at the University of California, San Francisco; Cornell University Medical College, New York; Good Samaritan Hospital and Medical Center, Portland, Oregon; the University of Illinois, Chicago; Wayne State University, Detroit; and Wills Eye Hospital, Philadelphia, Pennsylvania.

■ Six architectural projects have been chosen as recipients of the 1976 Bartlett Awards, jointly sponsored by the American Institute of Architects and the President's Committee on Employment of the Handicapped. The awards are presented annually for projects constructed to be especially accessible to the handicapped without detracting from aesthetic design. The six projects are: Waterside, New York City, four towers of apartments overlooking the East River, architect: Davis, Brody & Associates; Dormitory, Dining and Student

Union Facility, State University College, Purchase, New York, architect: Gwathmey Siegel Architects; Columbus Occupational Health Center, Columbus, Indiana, architect: Hardy Holzman Pfeiffer Associates; Center for Creative Studies, Detroit, Michigan, a music school and art school, architect: William Kessler and Associates; Butler Square, Minneapolis, redesign of a warehouse first built in 1906 into offices, shops, restaurants, and a luxury hotel, architect: Miller Hanson Westerbeck Bell Architects, Inc.; Crosby Kemper Memorial Arena, Kansas City, Missouri, an indoor sports and convention arena, architect: C. F. Murphy Associates.

## APPOINTMENTS

■ Veterans Administration Hospital, West Haven, Conn.: **Don E. Garner**, chief of blind rehabilitation.

■ The Lighthouse, New York Association for the Blind: **Mary Ann Lang**, educational director of the child development center.

■ Rhode Island Association for the Blind: **Robert H. Carolan**, executive director.

■ Pennsylvania Association for the Blind, Beaver County Branch: **Francis Siembak**, executive director.

■ Highbrook Lodge Camp, Cleveland Society for the Blind: **Bashir A. Masoodi**, camp director.

## AWARDS

■ R.B. Irwin Award, National Industries for the Blind: **John F. Brady**, former executive director of The Industrial Home for the Blind; and **J. Arthur Johnson**, former executive director of the Columbia Lighthouse for the Blind.

■ Workshop Board Member of the Year, National Industries for the Blind: **Robert H. Bennett**, New York Association for the Blind.

## RETIREMENTS

■ Rhode Island Association for the Blind: **Helen W. Worden**, executive director.

## COMING EVENTS

### November

17 National Accreditation Council for Agencies Serving the Blind and Visually Handicapped, Annual Membership Meeting, New York.

19-23 American Speech and Hearing Association, Annual Convention, Houston.

20-21 Symposium on the Art and Science of Parenting a Disabled Child, University of California, San Francisco.

### December

4-8 American Medical Association, Clinical Convention, Philadelphia.

## 1977

### January

24-26 National Braille Association, Regional Meeting, Kansas City, Mo.

### March

1-4 World Council for the Welfare of the Blind, Executive Committee Meeting, Riyadh, Saudi Arabia.

20-25 XI Pan American Congress of Ophthalmology, Santiago, Chile.

### April

14-16 European Regional Committee of the World Council for the Welfare of the Blind, Technical Aids Conference, London, England.

### May

8-12 General Council of Workshops for the Blind, Las Vegas.

25-29 White House Conference on Handicapped Individuals, Washington, D.C.

30-June 1 American Ophthalmological Society, Hot Springs, Va.

### June

18-23 American Medical Association, Annual Convention, San Francisco.

### September

25-Oct. 8 American Academy of Ophthalmology and Otolaryngology, Dallas, Texas.

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## AIDS AND APPLIANCES

Map kits and Handbook—For details contact: Dr. G. A. James, Blind Mobility Research Unit, Department of Psychology, University of Nottingham, Nottingham NG7 2RD, United Kingdom.

New Talking Electronic Calculator—the SPEECH PLUS™ from TSI is now available. Verifies all keystrokes and answers with 24 words from earphone or self-contained speaker. It is hand-held, rechargeable, and functions include percent, square root, memory, and automatic constant for easy 1/x and x2 calculations. \$395.00 from either AFB or TSI. For more information contact: Telesensory Systems, Inc., 1889 Page Mill Road, Palo Alto, California 94304, (415) 493-2626.

Now available from Rehabilitation Services, Inc., Suite 329-Dedeland Towers North, 9200 S. Dadeland Boulevard, Miami, Florida 33156:

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■ Louis Braille Paperweights, a three-colored silhouette of Louis Braille on a polished white marble base, \$5.95.

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# THE NEW FOR THE BLIND

# Outlook

DECEMBER  
1976  
Volume 70  
Number 10



**Simulation of  
Visual Impairments  
as a Training Technique**



# THE NEW FOR THE BLIND Outlook

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# Simulation of Visual Impairments As a Training Technique

**QUIDA FAE MORRIS, PH.D.**

*Dr. Morris is assistant professor of education, Division of Special Education and Rehabilitation, Boston College, Chestnut Hill, Massachusetts.*

Any understanding of the varieties of visual handicaps experienced by their students or clients remains purely academic for most educators of the visually handicapped. In order to give teachers and peripatologists a more realistic and empathic understanding of visual handicaps, instructors at Boston College included in their courses laboratory experiences that simulate visual impairments. This article reports the laboratory experiences that used near vision.

The purpose of the laboratory session is to provide experience with the kinds of limitations imposed by a variety of visual impairments. Through this experience it is expected that students will develop greater and more realistic awareness of the limitations, problems, and frustrations faced by visually handicapped persons. They will also become aware that numerous types of handicapping conditions and varying levels of impairment are all subsumed under the single label, visually handicapped.

**GOGGLES WITH INTERCHANGE-ABLE LENSES** The simulations were accomplished by the use of interchangeable lenses and field restrictors. Three kits with goggles and interchangeable lenses were custom made for use in laboratory experiences. The contents of each kit are listed for the benefit of those who may wish to make kits of their own. Each kit contains: six pairs of welder's goggles, two + 5.50 Diopter lenses to simulate 20/400, two +2.25 Diopter lenses to simulate 20/200, one +1.25 Diopter lens to simulate 20/60, one central visual loss to simulate macular degeneration or cataract, one funnel with 3° field of vision, one funnel with 7° field of vision (one kit includes a funnel with 10° field of vision), 3 black occluder lenses, three clear lenses, sheets of wax paper cut to the size of the lenses, twelve washers, and four thin washers to be used between lenses.

The welder's goggles have a separate opening for each eye so that the two eyes may be given different vision. For example, each eye may have a different visual acuity or one eye may be occluded. The goggles can hold one or two components for each eye, so that different parts may be combined. One eye may have a field restriction and an acuity loss, or two lenses may be combined to produce a greater acuity loss.

The components of the kit may be combined in other ways too. A piece of wax paper can be placed between two clear lenses to produce vision that can see light, color and form. If some of the wax is scraped off, the vision is improved. Because a funnel is used to produce a field loss it is not possible for both eyes to focus on the same point except at one fixed distance. Therefore, it is necessary to occlude one eye when tunnel vision is simulated. The funnels to produce a field loss can be rotated to place the remaining field of vision in different positions; up or down, right or left.

Persons who wear glasses find it more comfortable to take the glasses off when wearing the goggles. Nearsighted persons find their visual problems compounded by the plus lenses. However, far-sighted persons may have their vision improved by the plus lenses. For these persons, and when two lenses are combined, the quickest way to estimate the extent of impairment is to test the person's visual acuity using a simple screening instrument such as a Snellen Chart. The lenses were not buffed. These unbuffed lenses produce unrealistically good acuity at reading distances.

**LEARNING ACTIVITIES** Activities were provided for the students in each of four different settings: classroom, science laboratory, kitchen, and workshop. In the classroom

**Abstract:** *In order to give teachers and mobility specialists a more realistic and empathic understanding of visual loss, instructors at Boston College included in their courses a period of wearing goggles that simulated various visual impairments. Near vision activities were provided for students in each of four different settings: classroom, science laboratory, kitchen, and workshop.*



setting, students performed board work, read books, and completed worksheets. For the board work the students were asked to copy and work a group of arithmetic problems in which the sign of operation had to be noted. Some problems were written over smudges of accumulated chalk. Participants were allowed to move about the room as necessary to see. Each student was asked to bring in one of his own textbooks as a sample of regular print to read. A campus newspaper was also available. Reading materials in several sizes of large print were read.

The worksheets were spirit duplicated on the purple masters commonly used in schools. Each worksheet had a sample of a large print and a regular print activity. Two different sets were provided so that students would have new activities when they tried out different sets of simulators. Two first grade matching activities required drawing lines and writing a number beside the match. One of the first grade sheets was written in a strange symbol system, a written form of Moon Print, to simulate the experience of a first grade child who is asked to act on words he has not fully learned to read yet. In the classroom setting, the most noticeable problem the participants experienced was putting the cap on a pen when an activity was finished.

### Science Laboratory Setting

In the science laboratory setting, a number of stations were set up in advance. The students moved from one station to another trying at least two different sets of simulators. The necessary equipment was provided at each station, and written or verbal instructions were given by the instructor. Experiences were planned to include near and

distant activities, with large and small equipment. The following activities were provided: Making a copy from a large classroom wall chart of a diagram of the eye and from a near chart of the division of a protozoan; pouring a measured amount of water into a test tube with a funnel; weighing small metal blocks with a balance scale; taking apart a large three-dimensional model of the eye and putting it back together; and measuring four yards along the floor with a meter stick.

Near tasks were easier for everyone, in part because the lenses provided a poor imitation of visual impairment at near points. The students with a field restriction found it difficult to measure the floor with a meter stick. The participants realized that tunnel vision tasks with large materials were more difficult, especially copying from the wall chart and assembling the model of the eye. Pouring was the hardest activity for everyone, and using a transparent liquid made it even more difficult. Pouring the water was an easier task for participants with a restricted field than for those with an acuity loss.

### Home and Personal Management Setting

In a home and personal management setting, participants carried out two groups of activities. They were required to set the time and alarm on both digital and standard alarm clocks. In a workshop, students measured the placement for a screw with a braille ruler, started the hole with a nail, and finished the job with a screwdriver. Experience showed that the activity required more time than was available for one setting, so the task was changed to allow a different student to carry out each of the three steps in the activity.



Fig. 1. "Tunnel vision" is produced by placing a funnel over one eye and an occluder over the other.



In a second home and personal management section, students made a peanut butter and jelly sandwich and sewed a button on cloth. These activities took place in a kitchen, where there was a counter with sink and range. There was a table surrounded by tall stools and covered with a bright green table cloth. When given directions to make a sandwich students were told, "On the counter are a bread board and knife, a loaf of bread, peanut butter and jelly." A jar of apple jelly, which is very pale in color, was placed between the peanut butter and a jar of grape jelly. Although the apple jelly was conveniently located within the field of vision, most students reached for, and used, the grape jelly. One student planned ahead and chose the grape jelly realizing that it would be easier to spread on white bread. In order to structure the situation and yet allow individuals to find their own solutions, the instructor gave directions such as, "Take a seat on the far side of the table." No one moved immediately in response to this direction. Some students scanned the setting before they moved. Others had an initial reaction, "I can't do it." Most students used their hands to check their vision. The instructor asked questions as the students worked leading them to learn how to make assumptions from vague and minimal clues. One student commented, "I didn't know you could figure out so much with so little vision." Most participants found color to be the most important clue. For example, the bright green of the table cloth served as a point of orientation. The jar of grape jelly was easier to find than the jar of apple jelly.

At the same time that the instructor was guiding the students making sandwiches, other students completed the second task of sewing a button on cloth. This activity had various difficulty levels. There were small buttons and large buttons, buttons with two holes and buttons with four holes. Some buttons matched the cloth, while others contrasted with it. Some students sewed the button tactually and others did the job visually.

Guided with questions and their own experiences, participants came to realize that some tasks are about the same as with normal vision, and others are very different. Initially, some students overreacted saying, "I'd give up eating." Before these participants left this setting, the instructor guided them in examining their experience and reactions in order to achieve a more positive outlook. Participants realized the need to analyze the task and to plan ahead. They discovered that they could use assumptions based on just a small amount of visual information.

**PARTICIPANT REACTION** Student comment in the discussion at the close of each laboratory session indicated that they felt it was a worthwhile experience and that they had gained practical knowledge of some effects of visual impairment. Spontaneous comments and actions as participants worked under the simulators revealed their reactions. Students using the very low vision of looking through wax paper learned to use color and outline as aids. They were amazed at how useful these limited aids could be. In the classroom many students found it necessary to go right up to the chalkboard to see. They particularly commented on the difficulty of reading problems written on smudges of accumulated chalk.

Most of the problems encountered in the laboratory sessions were related to the equipment. Some of the problems resulted from the impossibility of creating an exact imitation of a visual impairment. The plus lenses produce a handicap for distance work, but at near points the vision is far better



**Fig. 2. An extreme visual acuity loss requires moving very close to the chalkboard.**

than a visually handicapped person experiences. Buffing the lens would provide a more realistic loss for close work. The central vision loss had limited success, because the person could look around the obstructed area. Many participants experienced double vision when they used the simulators with 20/200 vision in both eyes. After the sessions were over a suggestion for correcting this was given—shorten the chain across the nose which connects the two sides.

Only two of the kits had been received at the time these sessions were held, so that some students had to wait for a turn with the simulators. Ideally, each student should have a set of simulators at all times. The instructors felt a need for more of the lenses for 20/200 and 20/400. When the kit is being used to its fullest, these lenses should at times be used alone, at other times in combination with other lenses, and sometimes in combination with field losses.

**IMPLICATIONS** All of the activities were relatively stationary near point activities. Other sessions were necessary to work with distance activities, travel, and moving or changing visual targets. All activities described here were inside with artificial lighting. Other sessions were needed for daylight and outside nighttime experiences.

Simulator experience is provided for the students in many of their courses in a variety of situations. The simulators are used extensively by all the instructors. Students use the simulators as well as blindfolds in their coursework learning to travel, in the home and personal management course, and for individual projects. They are also used for group activities in other classes.

In situations where the participants are students or in-service teachers who have specific pupils assigned to them, the actual visual impairments of individual pupils can be simulated. This allows the participant to increase his understanding of the problems and frustrations a particular pupil or client faces daily. ■

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# How to Succeed at Being Blind

HANAN C. SELVIN

*Dr. Selvin is professor of sociology at the State University of New York at Stony Brook.*

Given the choice, everyone, including the blind, would like to have normal sight, just as everyone would like to be handsome and rich. But just as some people are able to live normal, satisfying, productive, and even happy lives without being beautiful or rich, so most blind people can learn to lead good lives. It takes a bit more learning and a lot more perseverance.

I do not know all the answers to this problem, any more than I know all the answers to other important problems in life, but, having taught people how to do research for many years, I myself have learned something about the process. That is, I have treated my blindness as a problem for research and have reaped certain benefits from this. In this article I want to share some of this knowledge with those who are becoming blind, those who have recently become blind, and with the other significant persons in their lives who may benefit from this knowledge. If you learn anything useful from this article, you can repay me by doing two things: (1) passing on a copy to anyone else who may benefit from it (you will be surprised how many of them you encounter in the months and years ahead); and (2) sending me any ideas of your own that may go into future versions.

As Robert A. Scott has put it in his *The Making of Blind Men*, blindness is more a *learned social role* than a physical condition. Of course, only those who actually have the physical condition need to learn that role, but the ways in which they behave and others behave toward them depend more on both groups' ideas of blindness than on the physical condition itself. If one defines blindness as a supreme catastrophe—the worst thing that can happen to anyone—then the only rational sequel is suicide. If, however, one defines blindness as a nuisance that can be circumvented or overcome with appropriate gadgetry, training, and intelligence, then being blind is not the worst of all possible fates. In short, life as a blind person is what *you* make of it.

**ENTERING BLINDNESS SYSTEM** The blindness system is all of those people, agencies, facilities, laws, and other aspects of culture and society that have to do with sight and blindness. Anyone reading this article has already made some contact with that system, but a more formal and prolonged contact is necessary to reap its full benefits.

Relatively slight defects in sight may deprive one of certain rights, such as a license to drive a car or pilot a plane, but the condition of being legally blind is rather different. The precise definition is something for your ophthalmologist (an M.D. especially trained to deal with problems of vision) or optometrist (a paramedical practitioner licensed to prescribe and sell glasses), but it may be useful for those approaching legal blindness to have at least a rough idea of what it means. There are two different sets of conditions, usually known as *visual acuity* and *visual field*. A person is legally blind if his or her acuity is insufficient for reading ordinary newsprint even with glasses. The measurement of visual field is more complicated, but you can easily test your own visual field to see whether or not it is normal. Hold your hands about six inches from your ears and, *while staring straight ahead*, wiggle your fingers. The normal visual field is slightly more than 180 degrees, so that, if your field is normal, you should be able to see both sets of fingers wiggling while you are staring straight ahead. If you cannot do this, then try the following: Hold one arm straight ahead, fully extended, with your thumb and forefinger as far apart as you can make them. The angle formed by the tip of your thumb, your eye (do this with one eye at a time), and the tip

**Abstract:** *Offers practical advice and information to people who are becoming blind, who have recently become blind, and for others who know or work with blind persons. Based on the author's experience as he himself lost his sight and, as a professional sociologist, gained invaluable help from his knowledge of research.*

**Note:** *Copies of this paper are available in the AFB Offprint Series. Agencies are herewith given permission to reproduce this article and are encouraged to hand it out to their clients.*

of your forefinger is about 15 degrees. If you cannot see both tips at the same time, then you are probably well below the visual field that is legal blindness.

Unlike a decline in acuity, which is usually obvious, declines in visual field are insidious and may go undetected for many years. If you think that your visual field may be impaired, hie yourself to an ophthalmologist or optometrist for a precise measurement. And don't put it off; some of the causes of blindness are easily treated, others are not, but you ought to know the score right away.

### Proof of Legal Blindness

Assuming that you *are* legally blind, get a statement in writing to this effect from your ophthalmologist or optometrist. Make several copies of this letter, and put the original in a safe place, preferably a bank vault.

What do you do with these documents? First, attach one of them to your next income-tax return, and be sure to claim the additional exemption that legal blindness confers on you. That alone should more than pay for the cost of the visit to the ophthalmologist or optometrist. If your condition is irreversible, (if there is no way in which medicine, surgery, or glasses can restore your sight to normal) have your specialist say that it is irreversible and this one certification will satisfy the IRS for the rest of your life; you will not need to include it in subsequent returns. You will need a second copy in order to get rehabilitation training through your state's Division of Vocational Rehabilitation (or whatever the functional equivalent of this is called in your state). You will need a third copy in order to get books from *Recording for the Blind*, the main source of recorded textbooks and technical books, and still another copy to get reproducers and books from the talking book program of the Library of Congress, which is available in each state through regional libraries and sub-regional libraries. [These organizations are more fully described under Books and Magazines, p. 424.]

**REHABILITATION:** The following remarks apply to those individuals who would be able to enter the labor force except for difficulties of vision. If you are over 65 years of age, you are defined by the government as being outside the labor force and therefore not capable of vocational rehabilitation. Similarly, if you have multiple handicaps, such as motor disabilities (inability to get around by yourself) or other sensory disabilities (being deaf as well as blind), then you may need to be put in touch with more specialized agencies. Most social workers and counselors in agencies serving the blind will be able to refer you to such specialized agencies where they are necessary.

If you are legally blind, by all means go to the nearest rehabilitation agency and inquire into what they can do for you. Don't be a smart alec and assume that you already know what they can do for you. You don't! I remember saying to myself before my first visit that I didn't want to have anything to do with the long white cane because *that* was an obvious symbol of blindness and I still had enough residual vision to classify myself as being "other than blind." I was wrong on two counts. First, I underestimated the speed with which my residual vision would deteriorate to the point where even I could no longer rationalize my condition as being other than blindness. Second, I entirely misunderstood what the long cane would do for me. It does indeed identify me as being blind, but its function is much more than stigmatizing. For one thing, it allows me to claim

services that I need from the sighted people around me. Holding my cane where it is clearly visible to oncoming pedestrians, I can ask the first one to help me cross a busy street, find the right subway platform, and so on. In short, the long cane is a license to ask for the special help that blind people need and that the sighted always provide cheerfully.

### Uses of the Long Cane

Of course, the long cane has even more important uses. My own experience may be illuminating here. Although I know midtown Manhattan as well as I know the streets of Stony Brook—probably even better, since I learned the layout of Stony Brook after my sight had deteriorated appreciably—I had come to the point where simply walking down a midtown street was too dangerous. I would bump into lampposts, step off curbs inadvertently, and occasionally find myself falling down the entrance to a subway (fortunately, I was able to right myself in time!). With the long cane, properly used, none of these things troubles me any longer. In short, I am able to move about in familiar places almost as well as a sighted person. Manhattan now poses only two small difficulties for me: I must ask the help of sighted passers-by to identify the number of the building that I want, and I must ask for help in crossing a street.

In situations where the ambient noise level is lower, such as most small towns and cities, I am able to cross streets by listening for the sound of oncoming traffic. Unfortunately, that option is not available to me in noisy places such as midtown Manhattan. Perhaps someday the environmental movement will have quieted Manhattan down to the point where this option is opened to me and to blind people who have the same difficulty.

One last word about the long cane: you must be *taught* to use it properly. The training takes only a few weeks, but there are many important details that you cannot figure out by yourself. Indeed, many of these details are literally matters of life and death; to have to work out all of them for yourself would be far too dangerous.

**ELEMENTARY BRAILLE** There is much more to rehabilitation than the long cane. Depending on the financial condition of your state and on what you need in order to complete your rehabilitation or education, the rehab. center may provide you with tape recorders, braille writers, and other "tools of the trade." More important than these gadgets, however, are the skills and ideas that you will pick up. First there is elementary braille. Although braille is no longer as important as it was before the advent of tape recorders, and although few adventitiously blind persons (those who become blind after birth) ever become rapid braille readers, a knowledge of elementary braille can be useful in some unforeseen ways. Take as examples two ways in which I now use braille. When I spent my 1972-73 sabbatical leave in California without my family (my wife's job might have been lost had she taken an unpaid leave to be with me), I had small aluminum two-letter braille tags sewn into the closings of my shirts and into the lining of my ties. [These tags are available from the American Foundation for the Blind.] BR stood for "brown," BL for "blue," and so on. My shirts bore labels corresponding to their colors, but the ties, which are often too multicolored for easy identification, carried labels for the suits or jackets with which they could be worn. A great convenience! My second use of braille is to label the many cassettes that I have on hand at any moment. I braille a one-word or two-word description onto a blank



price tag, the kind that comes with a tied string loop, and fasten the tag to a rubber band, which I snap around the cassette. I am planning a similar procedure for the bottles in my liquor cabinet.

### Skills of Daily Living

In closing this section I shall simply list a number of simple skills that I learned, without any further explanation. In the course on skills of daily living I learned such simple procedures as handling coins, handling paper money, dialing telephone numbers, and sewing buttons. Those who wanted it were taught how to operate sewing machines and how to make clothing. In the course on home repair I learned to handle ordinary tools safely and to make the simplest kind of household repairs. As one indication of what blind people can do when properly instructed, let me note that in this same part of the rehab. center men were being taught to cut wood on circular saws! The instructor told me that the blind user is less likely to hurt himself on dangerous machinery than the sighted user, for he knows that he must never become over confident and slight the safety rules.

In the homemaking class I learned the simplest kitchen skills: How to center a pot on an electric stove or a gas stove, how to measure hot and cold liquids, and how to cook various simple dishes. In this connection I must report that I grudgingly went along with the instruction on how to clean a bathroom mirror and how to dust furniture, skills I loftily felt I would never need. However, I reckoned without the problem of living alone in California the next year, when such skills were essential.

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## “The long cane is a licence to ask for the special help that blind people need and that the sighted always provide cheerfully.”

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In closing this section let me return to mobility, mainly the proper use of the long cane. My instruction included the special techniques for different environments. Thus I received special instruction on how to move safely on railroad-station platforms. My instructor also came to Stony Brook several times in order to familiarize me with special techniques I would need at home, in the Village, and at the University. When I arrived in California, I hired a local mobility instructor for one hour to teach me the comparable facts about my neighborhood. It was a good investment. Now, however, I understand the procedure well enough to be able to tell any sighted person how to instruct me in a new location. Now you see why I titled this section “Rehabilitation: The Magic Wand.”

**READING, WRITING, FIGURING** Many legally blind people are still able to read print. Usually, it is larger, darker, or more widely spaced print than that read by normally sighted people. Thus the *New York Times* prepares a Large-Type Weekly, which is a combination of news stories from its daily editions and features from the Sunday edition. This weekly is printed in type that is three or four times larger than that used in the regular paper. Most libraries that cater to the blind, including the talking book libraries, have many books in similar large type, including dictionaries,

encyclopedias, and other reference books. Ask your counselor or social worker about such services if you can make use of them.

Once your vision deteriorates beyond the level where you can read large type, you may be able to go on reading for some time, as I was, by the use of special eyeglasses and other devices, such as hand-held or desk-mounted magnifiers. This entire field is the province of low-vision specialists, who may be either ophthalmologists or optometrists—in both cases with special training. *Caution:* The ordinary ophthalmologist or optometrist is *not* a low-vision specialist and he may well be unaware of the existence of such specialists. Take my word for it, these specialists can be unbelievably helpful to you if your vision is in that area between normally sighted and totally blind.

### How to Find a Low-Vision Clinic

The best advice I can think of is to telephone the Department of Ophthalmology at the nearest medical school or the nearest school of Optometry and ask them if they have a low-vision clinic or if they can recommend one in your area. The American Academy of Ophthalmology and Otolaryngology, Rochester, Minnesota, and the American Academy of Optometry, Owatonna, MN, also supply information. Here is a list of the three that I know of: The Low-Vision Clinic of the Industrial Home for the Blind, Brooklyn, New York (the one that I used); the Low-Vision Clinic of the Boston University School of Medicine; and the Low-Vision Clinic of the School of Optometry of the University of California, Berkeley. Although it is slightly out of date (1973-1974), the *Directory of Low Vision Aids Facilities in the United States* is still worth consulting. It was compiled by the National Society for the Prevention of Blindness and is distributed by the American Foundation for the Blind.

One step farther down the scale of sight takes you beyond the optical low-vision aids to the electronic aids, generally known as “TV Magnifiers.” These devices usually consist of three main parts: (1) a sliding table on which the reading material is placed; (2) a TV camera, often equipped with a zoom lens, mounted vertically above the sliding table; and (3) a TV “monitor”—a TV receiver that is connected by wire to the TV camera. After a few hours of instruction and practice you will be able, in effect, to reprint the reading material in a size, brightness, contrast, and “mode” of type that pleases you. In other words, the image of the page that is projected on the monitor conforms to that combination of characteristics you find easiest to read. The “mode” refers to the ability of the machine, by the flick of a switch, to change ordinary black-on-white print to white-on-black, which is much easier for people with many kinds of visual problems. These machines now sell from about \$900 to about \$1,500, depending on size, portability, accessories, and so on. As mentioned earlier, some states may pay for all or part of the cost of such a machine for further study or work. Unfortunately for me, these machines came along slightly too late, for my visual field had already shrunk to the point where they were of too little help to be worth the price. Every now and then, however, I try one again in order to see if it is helpful enough to be worth the cost. Alas, no.

### The Optacon

At this point we leave the realm of the visual, whether aided by optical or electronic means, and pass to that newer and still more magical realm of devices that “transduce” visible information into information that can be ap-



prehended by some other sensory modality. In short, these devices change sight into sound or touch. Perhaps the most widely used is the "Optacon"—*OPTical-To-Tactile Converter*—a device produced by Telesensory Systems, Inc. in Palo Alto, California. The Optacon consists of a fountain-pen-sized light-sensitive device, with a small wheel at its bottom, that is connected by wires to a cigar-box-sized unit. The user rolls the light sensor along a line of print, and the electronic circuitry in the other unit converts the shape of each letter into a set of vibrations in a rectangular array of tiny vibrators. In use, the device is even simpler than this description. The user runs the light sensor along the line of print with his left hand and places the index finger of his right hand in a slot in the electronic unit. As the sensor moves along, the tiny vibrators mark the shape of each letter on the underside of the user's forefinger. The entire unit is small enough for the user to carry it wherever he needs to—into a supermarket to read labels on packages; into library stacks to find the right book, and into the reading room of a library. Unfortunately, the speed that even a practiced Optacon user can achieve is relatively low—rarely as much as 80 words a minute, far less than a good sighted reader and less than most braille readers. However, the Optacon has the great virtue of not requiring the preparation of braille or tapes; the user can read anything that is printed in normal type.

The current price of the Optacon, including several weeks of instruction and a year's free service, is about \$2,800. This is a great deal, but it will probably be reduced in time, and at least one state (Massachusetts) has bought Optacons for some of its blind trainees.

### Speech Plus Calculator

The same firm that produces the Optacon has come out with a pocket electronic calculator that not only has the usual visual display but also, at the press of a button, announces in words what the user is doing and what the registers show. For example, if the user presses a 2 then the *plus*, then a 3, and then the *equal* sign, the machine will say in a surprisingly understandable synthetic speech: "Two plus three equals five point zero zero" and display 5.00 in its register. (The speech accompanies the pressing of the keys, and if the user forgets what is in the keyboard or in the registers, the pressing of a special key will cause the machine to tell him!) The machine sells for \$395, five to ten times what a voiceless pocket calculator now costs. Again, competition and demand will undoubtedly reduce the price.

### Kurzweil Reading Machine

Most remarkable of all is the Kurzweil Reading Machine, which turns print of any ordinary style into synthetic speech or into braille. A laboratory model already exists, and its performance is mind-boggling. Indeed, its design is so sensitive to the needs of the blind that there is a key which, when pressed, causes the machine to spell the last word. That is, if the user does not understand the machine's speech (probably because the word in question should be pronounced in some way that the Kurzweil people had not encountered in their programming), the machine will spell that word, letter by letter, and then resume "normal" speech. Kurzweil estimates that he will have models to place in several rehabilitation centers, universities, and other institutions in a year or two, probably selling around \$10,000–\$15,000 and that lower priced models will be available later on for individual users. Let us all hope so!

### Writing

One of the simplest devices used by blind people is the Marks Guide, a standard clipboard to which is affixed a movable wire guide that travels up and down the page, a line at a time, and encloses the space available for writing on one line. One simply writes or prints in the usual way until one reaches the right-hand margin indicator; one then moves the guide a line lower and repeats the process.

The typewriter may appear to you an improbable instrument for the blind, but the modern typewriter owes much to inventors who were trying to make a writing machine *for the blind*, and touch typing was suggested *by a blind person*. As one indication of what a properly trained blind person can do, you should note that there are many blind people who earn their living by transcribing dictated medical records and other dictated material. Indeed, they even have a special association.

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**"There is hardly any technical task . . . that a blind person cannot do, given the right tools."**

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Braille can be written by either of two means. The simpler is a hand-held stylus and a "slate," a template that allows one to make the braille dots in an orderly and simple way. The stylus-and-slate is, however, very slow; it is suitable for making labels, but not for large amounts of braille. For larger amounts of writing one must turn to the Perkins Braillewriter, a device about the size of a typewriter, that allows one to produce braille much more quickly than the stylus and slate. Braillewriters are available for examination, trial, and instruction at most rehab. centers.

Farther along in specialization is a typewriter formerly manufactured by IBM, that may still be available in some secondhand market of blind goods. With this machine, one can type braille as fast as the ordinary typist types print. Then there is the other side of IBM, the computer side. If you are a computer programmer or need to read a great deal of computer output (beyond what a sighted helper can easily do), your computing center can buy, at relatively low cost, a braille "printchain" that will operate on a high-speed printer and produce reams of braille. Yes, there are blind computer programmers.

In addition to the pocket "talking calculator" described above, there is also a braille calculator, adapted from a standard Marchant. Blind people can, of course, learn to operate key punches and to read braille printouts, as described above. At the other extreme, there are braille slide rules, available for something like \$5.00.

**TOOLS OF THE TRADE** There is hardly any technical task, save perhaps driving a car or performing surgery, that a blind person cannot do, given the right tools. Take carpentry for example. There are braille marked carpenters' squares, levels that emit an audible signal, and many other standard and specialized tools that blind persons find easy to use. Large collections are available from such organizations as: Aids and Appliances Division of the American Foundation for the Blind; Aids and Appliances Division of the National Federation of the Blind; American Printing House for the Blind; and Howe Press.

You should write to one or more of these institutions for their catalog, which is usually available in either ink print or



**“One of the genuinely good things about being blind . . . is the ability to get talking books; the reading by a skilled reader adds a wholly new aesthetic dimension to the printed page.”**

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braille. If you are able to visit any of them, you will be enlightened by the variety of useful devices.

New devices and new sources are frequently listed in *The Braille Monitor*, the free monthly magazine of the National Federation of the Blind. In addition, there are a large number of blind people who run mail-order businesses specializing in devices and gadgets useful for the blind. To get a relatively complete list of such people, send a C-60 cassette (this is a 60-minute cassette—30 minutes in each direction, and is by far the most useful size) to Warren Sladky, Talking Book Division, Cleveland Public Library, 325 Superior Ave. NE, Cleveland, Ohio 44114.

*A Word of Caution.* Like the amateur photographer, the novice blind person can easily go wild over gadgets. Use restraint! You can always go back or send in a mail order, so buy only those gadgets that you have already seen and tried. This applies above all to the expensive gadgets, such as TV magnifiers, which have occasionally been sold by unscrupulous salesmen to people who literally could not use them at all.

### **Memorize the Calendar!**

In the end, I believe, you will become your own inventor of devices and procedures to facilitate your own work and leisure. For example, I was annoyed by my inability to read a printed calendar and had not acquired a braille calendar (cheap and widely available). In lieu of both, however, I figured out a way to keep the calendar for a year at a time in my head. This sounds more impressive than it is. All that one has to do is to memorize each year the twelve dates of the first Monday of each month; for 1976 these are: 5, 2, 1, 5, 3, 7, 5, 2, 6, 4, 1, 6. To illustrate this procedure, let me show you how to determine the day of the week for the Fourth of July and for Christmas:

1. Convert the month to its numerical equivalent; thus July is the seventh month and December is the 12th.
2. In the above list of 12 numbers locate the date of the first Monday of the given month. It is 5 for July and 6 for December.
3. Since July 5th is the first Monday in July, the fourth will be the day before, which is Sunday.
4. For Christmas, reason this way: “The 6th is a Monday, and the 13th, 20th, are also Mondays; the 25th will be five days after the last-named Monday, so it will be on Saturday.

Do you think that memorizing twelve numbers is particularly difficult? Surely, you know your own Social Security Number and your own telephone number, which together are many more than twelve digits! This little example should convince you that, although there is no truth to the popular notion of “sensory compensation,”—that the loss or deterior-

ation of one sense will somehow be compensated by a magical improvement of another—blind people can learn to make more intelligent use of their remaining senses, and especially of their memories. (After inventing the calendar scheme, I discovered that someone else had done it before me, but it is nevertheless worth knowing and using.) You will be surprised by the speed with which your memory will improve!

**BOOKS AND MAGAZINES** The Division for the Blind and Physically Handicapped (DBPH) of the *Library of Congress* is charged by law with providing braille books and talking books, as well as the machines for reproducing the latter, free of charge to the blind and to those physically handicapped persons who are unable to read ordinary print (unable, for example, to turn the pages of an ordinary book). Your local library will be able to put you in touch with the regional library or sub-regional library that will serve you. The arrangement varies widely from state to state. When I was in California during 1972-73, I obtained my talking book reproducer from the state lending agency in Albany and my books from the California State Library in Sacramento. Here in New York, however, I get both from the sub-regional library that serves Suffolk County; it is located some dozen miles away, albeit in a direction that is unreachable by public transportation. This latter awkwardness poses no real problem, since a letter or phone call brings me whatever I need.

Not only are the books and the machines available free, but the books also travel back and forth without postage, as, indeed, do braille and recorded material that *you* send. All you have to do is write “Free matter for the blind” where the stamp would go and send off your package. Unfortunately, this does not apply to ordinary letters or to material that others, apart from agencies serving the blind, send to you.

### **Magazines**

I have already mentioned *The Braille Monitor* and *Talking Book Topics*. *The Braille Monitor* is available free from Ms. Hazel tenBroek, 2652 Shasta Road, Berkeley, California 94709; Ms. tenBroek is associate editor of the *Monitor* and is the widow of Jacobus tenBroek, formerly a professor of speech at the University of California and the founder of the National Federation of the Blind. Be sure to specify which version you want—ink print, braille, or recorded. Several other magazines are available free of charge, either on an individual basis or on a share basis. I am particularly fond of *Newsweek*, which I share with one other reader, the two of us alternating first and second every six weeks, and *Choice Magazine Listening* (your talking book library can supply the address) which comes free and without sharing. It is a high-level collection. In addition, there are many magazines that you can get free on a loan basis from your talking book library. These are announced every other issue or so in *Talking Book Topics*.

### **Technical Journals**

Unfortunately, few of these are available from the above sources, and they tend to be the specialized journals of fields like education and social work, in which there are many blind readers. What do I do, for example, about the *American Sociological Review*, which is not available from these sources? I have now worked out the following procedure. I have a volunteer, John Fraser in this case, who is temporarily an invalid and therefore has lots of free time. He has an



inexpensive cassette recorder on which he records such material for me; I have a bulk eraser that I use to erase the cassettes with which I have finished before returning them to him. John records tables of contents, abstracts, and, when requested, entire journal articles. He also records university memoranda, reprints, and other "fugitive documents" that are not available elsewhere. We have a steady stream of cassettes going back and forth, and the procedure works well with readers who are intelligent enough to understand my material.

In addition, although I have yet to make use of it, the DBPH publishes a free booklet *Volunteers Who Produce Books*.

### Student Papers and Dissertations

Cassette machines are so widely available nowadays that students who cannot buy one for their own use can easily borrow one from a friend or from a University's audio-visual center (at Stony Brook, the Instructional Resources Center). Students who want to do their Master's essays or Ph.D. dissertations with me understand that they will have to record and that I will respond by sending them one or more cassettes of comments. I have prepared special instructions for such students in order to make the recording and commenting go smoothly. In time, as I increase my access to recorders, I will ask undergraduates to do this too; for the moment, I have such papers read to me aloud by my teaching assistants, but we will probably shift more and more to cassettes, so that I will be able to listen when I feel like it, rather than when my sighted reader is available.

### Talking Books

The Library of Congress selects books to be recorded and commissions agencies to hire professional actors to record the books. Each actor or actress reads an entire book, and you have to experience such a reading to understand how wonderful it can be. Indeed, one of the genuinely good things about being blind (I am absolutely serious here!) is the ability to get talking books; the reading by a skilled reader adds a wholly new aesthetic dimension to the printed page.

The Division for the Blind and Physically Handicapped sends out, free of charge, a bi-monthly newsletter, *Talking Book Topics*, that carries news of the DBPH and lists the new recordings. The mission of the DBPH is primarily fiction and non-fiction for the general reader, not textbooks or technical monographs. Unfortunately, the DBPH seems to think that the general reader is a hedonistic dunderhead, who can appreciate relatively little beyond Zane Grey and Faith Baldwin. At this writing we have begun a controversy with the Chief of the DBPH about the relatively small proportion of important current books that it records. Wish us luck! Of course, I am only the latest in this controversy, and it will probably take much more agitation than I am likely to stir up to get the DBPH to change its ways. Fortunately, we do not depend solely on the DBPH.

### Recording for the Blind

This organization, which has its headquarters in New York City, also has branches in many cities throughout the country, especially near large universities (some of the branches are: Oak Ridge, Tennessee; Palo Alto, California; Chapel Hill, North Carolina; and New Haven, Connecticut). It has a different mission from the DBPH: It uses volunteers to make recordings of text, technical, classical, and whatever

other kinds of books a reader might want, but it sees its primary mission as serving students and professionals. Like the DBPH, Recording for the Blind (RFB) does not charge for its services. They maintain a "master tape library" of some 30,000 titles. When you request something that is already in their master tape library, they run the master tape through a high-speed duplicator and prepare a new tape or cassette for you. (At this writing, 1976, RFB will send either open-reel tapes or cassettes as you request. Since cassettes are so much easier to handle, they see the day coming soon when almost all of their readers will be using cassettes.) You may keep these tapes for as many weeks or months as you need and then return them to RFB, where they are erased and used for another reproduced recording. Like the books of the DBPH, the tapes and cassettes of RFB travel free of postage in both directions, but, unlike the DBPH, RFB does *not* provide the necessary machines (see below).

What about titles that are not in the master tape library? One simply sends *two* copies of the inkprint book to RFB, which records it, usually within a month or two, and then either returns the two books or returns one and pays you for the other. They need two books in order that the recording be checked by a "monitor," who holds the second copy and, in principle, catches mistakes that the reader is too busy to notice. Unfortunately, for the most part, these volunteers are neither as skilled nor as conscientious as the professional readers for the DBPH, and so occasional mistakes creep in. Moreover, it is a rare volunteer who acts as if he or she were aware of any language other than English. The pronunciations of German and French words are often ludicrous. I am almost tempted to go back and erase these last few sentences, for my gratitude to RFB and its volunteers is enormous. I simply include this note in order to express one set of irritations in the hope that, sooner or later, others will complain to RFB and try to get it to enforce a slightly higher standard of quality.

### Other Recording Organizations

All in all, there are some two dozen or more organizations that record special categories of books. For example, there is the Jewish Braille Institute, which provides books in Yiddish, Hebrew, and English in both braille and recorded form. In addition, there are a few commercial organizations that prepare specialized material—for example, cassettes to which doctors or lawyers can listen while driving their cars—that could be useful to blind persons. You can find out about both sets of organizations from your talking book library.

### REPRODUCING MACHINES

The DBPH provides excellent machines for reproducing their discs and cassettes. Their disc reproducer is altogether unique, being able to play at 33⅓, 16⅔, and 8⅓ revolutions per minute (rpm). The 33⅓ is, of course, the standard long-playing record speed, and the 16⅔ speed is available on some commercial machines, but the 8⅓ is unique to the DBPH machine. This speed allows one hour of uninterrupted listening on each side of a ten-inch record, a pleasant length.

The DBPH has announced that it will gradually shift from discs to cassettes, and it has already begun issuing some books in the latter form. The cassettes are smaller, less easily damaged, and much more convenient for blind users. Moreover, almost all cassette recorders and reproducers are easily portable, and many operate on disposable or re-



## **“Think creatively about your blindness; look on it as a problem for research and study, and try to think up new solutions for your problems (they will be someone else’s too.)”**

chargeable batteries. The DBPH machine, which, like the disc reproducer, is loaned free and maintained free by your regional or sub-regional library, is an excellent machine. You can even obtain free headphones, which are useable with the disc reproducer as well as the cassette machine, and which allow you to listen without disturbing others.

I am forced to note here one strong dissatisfaction that I have with the DBPH cassette reproducer. Charged by Congress with providing machines for *reproducing* recorded material, it provides a machine that, unlike commercial cassette machines, does not have a recording head. That is, the DBPH has saved perhaps \$10.00 and deprived the blind of the convenience of an additional recording device.

### **Tape Recorder Speeds**

Although the DBPH cassette machine will play cassettes recorded on most commercial machines as well as the DBPH and RFB cassettes, the converse is not true. The newer cassettes made by both of these organizations are recorded at a special low speed of 15/16 inches per second (ips), which is not available on most commercial machines at this time.

In addition to playing these cassettes, the APH modified GE cassette player (see below) will record at the 15/16 ips speed also, thus allowing a great deal of material to be recorded on the two tracks of a cassette. Finally, both the APH and the DBPH cassette machines will allow the playing of four-track cassettes, although one cannot *record* on four tracks with the APH machine.

Like the DBPH, RFB is gradually shifting to cassettes, but it still relies for the most part on open-reel tapes. Can you play these tapes on a commercial open-reel tape recorder or tape deck? Maybe yes, maybe no. In order to cram as much recorded material as possible on each five-inch reel, RFB has adopted two technical expedients that restrict the number of tape recorders usable with its tapes. These are: Four-track recording and 1 7/8 inches per second speed (half the lowest speed on the usual commercial machine). If you have a *stereophonic* tape recorder, one equipped with separate volume controls for each speaker, and if the machine has the 1 7/8 inch speed, you will be able to play RFB tapes on it. To see how this is done, think of the tape as containing four tracks, numbered one, two, three and four from top to bottom. When the machine is playing stereophonically, it is picking up tracks one and three while going in the forward direction. When the reel is altogether unwound, the user exchanges the supply and take-up reels and plays the second half on tracks two and four. For RFB books, however, only one track can be played at a time, so you must turn the unused volume control down to zero. You then play track one in the forward direction, track two in the reverse direction; then reverse the settings on the two volume controls and play tracks three and four. If you don't understand this particular discussion, you will soon figure it out, once you have an RFB tape and your machine to play with.

In the event that you have to buy a recorder for four-track

operation with RFB tapes, the only commercially available machine seems to be the SONY 105, but don't rush out to buy one locally, for the American Printing House for the Blind has a modified machine with several features that make it especially desirable for the blind. Since RFB will now make all of its books available on request in cassette form, it would probably be a better investment to buy the APH-modified GE cassette machine, which is a good deal cheaper and is light enough to carry about. It also has a rechargeable battery, a great convenience when you want to play or record cassettes away from a power outlet. Finally, this machine will do what, apparently, no commercial cassette machine will do: play four-track cassettes monaurally at the 15/16 ips speed, the combination that is now standard for RFB (and that will become standard for Library of Congress cassettes). I have their open-reel machine at home, and the university has bought one for my university office; I also own an earlier model of their GE cassette machine, and the university has bought me the new model, which is significantly improved.

### **Other Kinds of Speech Machines**

Experience, your own and that of others, will soon show you whether or not you can make use of other kinds of machines. If you do a great deal of dictating that is transcribed by a secretary, it is useful to have dictating and transcribing equipment that is especially adapted for these purposes. I will be glad to tell you what equipment I have found useful, but suffice it to say that there are many brands and several modes of recording that serve interchangeably. The one innovation that I have made is to buy a cheap (\$28.00) cassette recorder for two special uses. Ordinarily it stays in our kitchen, on a shelf near the telephone. When I find it on the kitchen table, however, I know that it contains a message for me, and I rewind the cassette for a few seconds to play the message. Think of how much confusion this avoids! The second use for this machine is as a back-up for the APH cassette machines when the latter are back at their source for repairs (more frequently than I had hoped!).

Academics and others who write for a living and who compose their papers on the typewriter often ask me how I manage to write papers without a typewriter. The procedure I have worked out is surprisingly good, but it does require a desk top full of equipment—a minimum of two cassette machines. On the left I put my DBPH cassette player, on which I listen to an outline, a previous draft, or part of a book or journal article. On the right I have my American Printing House cassette player/reproducer, on which I record my new draft. When I have three working machines on hand (here is a third use for the back-up machine mentioned above), I use the third machine to make “running notes,” reminders about points to cover in the passages immediately ahead. This sounds more complicated than it is, and you will be able to master the two or three machine arrangement with a half-hour of practice. I now find myself able to turn out papers even faster than before.

**ORGANIZATIONS OF AND FOR THE BLIND** You will hardly have entered the blindness system before you discover that the nature of organizations of and for the blind is a topic of hot controversy. I list below the most important organizations and describe them briefly; I also append some of my own, idiosyncratic, and perhaps biased observations. Be warned of these possible biases and make up your own mind when you have all the information!



### Some Useful Addresses

This list is necessarily very restricted. For a more comprehensive listing, one that includes local sources of help, consult: *Directory of Agencies Serving the Visually Handicapped in the United States*.

Published by AFB, price: \$10.00 prepaid.

American Academy of Ophthalmology & Otolaryngology  
15 Second Street, S.W.  
Rochester, MN 55901  
(507) 288-7444

American Academy of Optometry  
117 West Broadway  
P.O. Box 565  
Owatonna, MN 55060  
(507) 451-3072

American Council of the Blind, Inc.  
501 North Douglas Avenue  
Oklahoma City, OK 73106  
(405) 232-4644

American Foundation for the Blind, Inc.  
15 West 16th Street  
New York, NY 10011  
(212) 924-0420

American Printing House for the Blind, Inc.  
1839 Frankfort Avenue  
Louisville, KY 40206  
(502) 895-2405

Blinded Veterans Association  
1735 DeSales Street, N.W.  
Washington, D.C. 20036  
(202) 347-4010

Howe Press  
Perkins School for the Blind  
Watertown, MA 02172  
(617) 924-3434

Library of Congress  
Division for the Blind and Physically Handicapped  
1291 Taylor Street, N.W.  
Washington, D.C. 20542  
(202) 882-5500

National Federation of the Blind  
218 Randolph Hotel Building  
Des Moines, IA 50309  
(515) 243-3169

National Society for the Prevention of Blindness, Inc.  
79 Madison Avenue  
New York, NY 10016  
(212) 684-3505

Recording for the Blind, Inc.  
215 East 58th Street  
New York, NY 10022  
(212) 751-0860

Telesensory Systems, Inc.  
1889 Page Mill Road  
Palo Alto, CA 94304  
(415) 493-2626

### National Federation of the Blind

By far the largest organization of blind people (there are only two others of national scale; see below), this is also the most active and most belligerent. It fights everywhere and with unparalleled zeal for fair treatment of blind people. It publishes *The Braille Monitor*, which is well worth reading every month. In no more than one issue you will learn what the NFB is all about. In addition, the NFB has an unusually good Aids and Appliances Division; send for their catalog. As just one example, their long cane is far better than the one I received from my rehab. center. I am a member of the NFB and of the "Greater Long Island Chapter of the NFB of New York," an organization whose title contains almost as many words as it has members. Nevertheless I am not always in agreement with the tactics that the NFB employs, nor with the way it treats its opponents or even its former supporters who have come to disagree with it.

### American Council of the Blind

This organization split off from the NFB (or vice-versa) some years ago. It is much smaller and much less visible to the rest of the world than the NFB, but, for all I know, it may do as much good work. I simply do not know much about it, and I leave it to you to find out.

### Blinded Veterans Association

If you are eligible for this association, you probably know about it already. For the record, however, it is for people whose blindness is service-connected, not necessarily combat-connected.

### American Foundation for the Blind

This organization is the *bête noire* of the NFB, especially for its having spawned a child, the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped (NAC). Almost any issue of *The Braille Monitor* will tell you more about NAC than you may care to know. Nevertheless, even if everything that the NFB says about the NAC and AFB is true, the AFB still is worth knowing about for two services: (1) Its Aids and Appliances Showroom, open during normal business hours, has an excellent selection of gadgets and material. If you live in the New York Area, be sure to visit it. The location is: American Foundation for the Blind, Inc., 15 West 16th Street, between Fifth and Sixth Avenues. (2) The AFB will provide a book of coupons and an identification card that enables a blind person to take a sighted companion free of charge on railroads and buses where the fare is more than \$1.00. There are some further qualifications, but this is the meat of it. For details write to: One-Fare Travel Concession, AFB, 15 West 16th Street, New York, New York 10011. Some members of the local NFB have told me that they refuse to use this service, on the ground that they don't need a companion anyway, but I look upon it as a small and good thing that makes life slightly easier for blind people. Almost all railroad and bus lines honor these coupons. A major exception is the Long Island Railroad, which is operated by the Metropolitan Transit Authority of New York State. This latter organization issues an identification card that allows handicapped persons to travel at half fare in "off peak" hours on the Long Island Railroad and the New York City subways and buses. Write to the MTA for application blanks if you are interested; you will need another copy of your certification of legal blindness.



From time to time, various activists—blind, otherwise handicapped, and “normal”—have conceived of forming coalitions of the handicapped of different types. Some of these coalitions have been national, others local. I think this is an altogether admirable idea, but others, both inside the blindness system and outside it, disagree. The NFB, for example, is so adamantly against coalitions that it forbids its members to join them, as it also forbids joining the American Council of the Blind.

**PUTTING IT ALL TOGETHER** As I sat with my cassette recorder in hand, pondering how to begin this section, I thought of saying: “That’s all there is; there isn’t any more!” But, of course, there is a great deal more that I could

tell you and much more that you will, or should, discover for yourself. I leave you with two requests: (1) Think creatively about your blindness; look on it as a problem for research and study, and try to think up new solutions for your problems (they will be someone else’s too). (2) Share your thoughts with me, whether critical, approving, or questioning. You can write to me if you wish or send me a cassette. I will reply in the mode that you have used (my standard rule for corresponding by cassettes is that I try to keep the trade balanced, but I don’t promise to return the identical cassette that you send me). To keep the quality of our trade uniform, use only C-60 cassettes of voice quality. Longer cassettes cause trouble, shorter ones are uneconomical, and the hi-fidelity cassettes are unnecessarily expensive. ■

## Design of Kitchens for Blind Persons

Three graduate students at the Illinois Institute of Technology, Chicago, have built a model kitchen incorporating design changes and equipment developments that will help blind people to prepare food more safely, conveniently, and efficiently. All their suggested changes can be made in existing kitchens using materials already on the market.

In order to gain an understanding of the problems facing visually impaired persons in the kitchen, the students, Lindsay Lochman, Antonio Abad, and Henry Chao, interviewed blind persons at the Chicago Lighthouse for the Blind and at the Illinois Institute for the Visually Handicapped. In the search for deeper insight, Ms. Lochman even donned a blindfold and prepared food while the two men watched. A third source of information was the graduate thesis of a blind woman who lived alone and had learned to cook.

The overriding consideration in the redesign was to reduce the stress that working in the kitchen could produce in a blind person. Work areas, for instance, were repositioned to improve safety and efficiency and to allow more storage space, since blind people do not shop as frequently as people who can see. On completion of their research, the students made models of equipment incorporating their findings.

Among the difficulties found in conventionally designed kitchens were burners too close together, sinks too close to the counter edge, and heat proof work areas too far away from stove and burners, where hot cookware might need to be placed.

Among the suggestions not incorporated in the students model, but arising from their research were the following:

All unnecessary kitchen and outside noise should be reduced through soundproofing, since blind people often use sound to judge their cooking.

The kitchen design should allow the user’s hands to be as independent of each other as possible to allow for more freedom and better preparation for emergencies.

The kitchen work areas and storage modules should be

interchangeable and mobile to provide varied arrangements to suit a particular blind person’s needs.

Work areas should have different textures and raised edges to provide clues for identification of reference points.

Floors should have varied textural surfaces to give blind people awareness of location.

Varied shaped or textured handles should be used for ease of identification.

Electrical outlets should be placed at waist level with large metal plates for ease of locating.

Sinks should have a raised edge with a small counter area in front to provide a small work area helpful for cleaning purposes and food preparation. In addition, the sink might have different depths or shapes helpful in food preparation and washing.

Inquiries about the project are welcome. Write: Illinois Institute of Technology, IIT Center, 3200 S. Wabash Ave., Chicago, IL 60616. Telephone: (312) 567-3111.



# Community Based Orientation and Mobility Programs

**SUSAN HARRINGTON GODLEY  
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Previous studies on community based orientation and mobility (O&M) programs have considered the visually impaired client of private agencies (Couchell, Keating, & McCoig, 1966; Association for the Blind of Rochester, 1967), the visually impaired person without vocational rehabilitation potential (Thompson, 1967; Hubbard, 1969), and the school age child (Johnson and Gibson, 1967; DiMattia, 1969). The literature consistently specifies the need for O&M in the community setting (Handel, 1963; Head, 1972; Hartung, 1968; Auzenne, 1965), and LoGuidice (1969) emphasizes the need for follow-up O&M evaluation within the community. However, little has been written concerning community based O&M programs within the vocational rehabilitation agency for the blind. This type of program is difficult to establish and implement, but the advantages are numerous and the results justify its existence.

The two field vocational rehabilitation offices for the visually impaired used as a guideline for this paper are staffed by rehabilitation counselors, placement specialists, rehabilitation teachers, O&M specialists, children's caseworkers, and a supervisor. The offices are located in cities with populations exceeding 600,000. The O&M specialist is part of the professional team throughout the rehabilitation process. O&M referrals are made by the rehabilitation counselor or teacher. Additional facilities providing O&M services throughout Texas are rehabilitation centers, public schools, Veterans Administration hospitals, and private agencies.

In establishing the field O&M program the article, *Procedures for the Activation of an Orientation and Mobility Program* (Head, 1972) was utilized. According to Head it was necessary: 1) to write goals and objectives, 2) develop lesson plans, 3) order materials, 4) provide in-service training for office personnel, and 5) schedule lesson periods and students.

**PROGRAM GOALS** The primary goal of the two programs is to enable visually impaired persons to fulfill their potential to be independent travelers by providing thorough sensory and skill training. Students requiring more than twenty hours of instruction are classified as "long-term" students. These individuals usually have different degrees of visual acuity and need instruction in all phases of O&M training. Short-term services could include evaluations, low vision training, orientation services for those with previous O&M training, and preparation of follow-up for persons who will or have received mobility training at residential facilities. Instruction is provided on a four to five day per week basis.

The O&M specialist will find that community and agency needs differ. It is necessary, however, that community based O&M programs place a priority on long-term training since there will always be those individuals who are unable, because of health or age, or unwilling to go to a residential facility for O&M training (Thompson, 1967; Hubbard, 1969; Handel, 1963; Arkansas Enterprises, 1966; Dickinson, 1963). The availability of community resources will also have an effect on O&M services. For example, in a city that has an active low vision clinic the O&M specialist may spend much of his or her time training students to use an aid, in close cooperation with the optometrist.

In order to implement these goals, lesson plans should be developed for indoor, residential, semi-business, and commercial phases of O&M training. An O&M specialist who is new to a community will need an adequate amount of time

**Abstract:** *Outlines procedures for implementing a community based orientation and mobility program within a vocational rehabilitation agency. Discusses advantages and disadvantages of such programs compared with orientation and mobility training offered at residential facilities. Data are given on two community based programs, showing a high rate of successful rehabilitation.*



for self-familiarization with the area. In a large city, one month would be a minimum amount of time required to learn the area and write the lesson plans. During this time period, instructional materials should be ordered. These materials include canes, blindfolds, low vision aids, Chang Mobility Kit, and cassette tapes for auditory maps.

When constructing lesson plans, community resources will determine the areas used. In a large city it is preferable to have four training buildings for indoor travel, four residential areas, and four semi-business areas located in different parts of the city. This can be helpful in minimizing travel time. However, if only one of each area can be located that meets the criteria for a good training area (Head, 1972) then it should be used. Quality training should not be sacrificed for less driving time or the convenience of the instructor (Code of Ethics, 1974). For indoor O&M training, schools, community colleges, and office buildings can be used, with consent from appropriate authorities.

### **In-Service Training of Other Professionals**

In-service training of other professionals in the vocational rehabilitation office for the visually impaired should begin early. The supervisor of the office may not know what quality O&M services are if he or she has never supervised O&M specialists before. Rehabilitation counselors, rehabilitation teachers, and placement specialists may also be confused as to what constitutes the O&M specialist's role within the team effort. A brief history of O&M is helpful in clarifying this.

In-service training should also include a sharing of the O&M specialist's goals, lesson plan areas, and initial schedule. The rehabilitation counselor should know that the length of a client's O&M training will depend on individual differences, though the average amount of instruction required by a long-term student is 51 hours. All office personnel, including secretaries and receptionists should be given blindfold instruction in basic sighted guide techniques. It is also educational for the staff if some phase of O&M training can be planned around the office area. The vocational rehabilitation office should definitely be one objective of a lesson. In-service training should include observation of O&M lessons in progress by the professional staff.

Once lesson plans have been established and in-service training is completed, the O&M specialist can begin to plan a schedule. The specialist may decide that four students per day is an ideal number to teach, considering travel time. Five students a day may be taught if they are located close together. Conversely, three students per day may be a full load if one student is involved in bus and downtown travel. Evaluations and route orientation needs may be met when there are cancellations from long term O&M students; or one day a week may be set aside to provide these services.

**HIGH PRIORITY STUDENTS** One of the first problems the O&M specialist will encounter is defining high priority students. Since there is usually a waiting list, it is often difficult to determine which type of student will receive O&M instruction first. There are many possibilities—the students who are entering or have returned from a residential facility, the aged, newly blinded individuals, or those who are in job training. The rehabilitation counselor may set priorities within his caseload. This is one problem that will have to be discussed with the supervisor until a resolution is found.

Another problem inherent in O&M training in large cities

is the amount of time spent in travel. The student must be picked up at his home, taken to the training area, and then returned home. In at least one project, volunteers were used to provide transportation (Association for the Blind of Rochester, 1967). If this resource is reliable it would be a valuable method for increasing the number of lessons to be taught. Also, once an individual has mastered the bus travel phase of O&M training, he or she can be asked to meet the specialist in the commercial area where the student is presently in training. It is best if the O&M specialist is limited to training individuals located within the Metropolitan area. If the specialist is expected to cover outlying rural areas as well, services will be spread so thin that effectiveness will be impaired.

### **Cancellations**

A frustrating problem for the community based O&M specialist is that of cancellations. They occur more frequently in a community based program, if only because it is not as structured a setting as a rehabilitation center or school. However, the free time can be used for work, to provide short term services, or to work on projects that enhance the O&M program. If a student is consistently missing lessons for whatever reason, it may be necessary, at least temporarily, to discontinue O&M services since the continuity of training would be interrupted.

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**“One of the advantages of community based O&M programs is the flexibility of time for training.”**

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An additional phase of training that requires more flexibility on the part of the community based O&M specialist is training those individuals who are employed. At times long-term O&M will begin prior to the individual's employment. And with more mobility instructors in the field, fewer people will be placed in jobs without appropriate training. Still, once employment begins, continued training can only be provided during evening hours. Moreover, a few individuals are first introduced to O&M training after employment has been established. In order to meet the individual's needs in both situations, evening lessons should be provided on a consistent basis. Furthermore, job orientations may necessitate contacting the individual for an early morning bus route.

One of the advantages of community based O&M programs is the flexibility of time allotted for training. Hubbard (1969) states that at a rehabilitation center a student's O&M program is geared toward the length of stay. The length of stay at some residential facilities can be shortened for a student if he or she can receive training before going to the center and if it is known that follow-up services can be provided in his or her community. Also, some persons have to repeat O&M training several times before becoming competent travelers (Knowles, 1969). In providing this type of service, residential facilities and community O&M specialists can complement one another. Even if a student has received the full range of O&M services at a residential facility, orientation to his neighborhood may be necessary (LoGuidici, 1969).

A community based O&M program is also able to meet other needs. The “Code of Ethics for Orientation and Mobility Specialists” (1974) points to the need for the specialist to involve the student in the planning of his or her lessons. It



also states that before terminating training, an objective evaluation should be made to determine whether the student's needs have been met. If training is provided in the city where the student resides, then he or she is apt to have specific requests regarding training. The specialist will also be better able to determine student needs after surveying the student's neighborhood and the available public transportation. After completing the planned residential sequences, lessons can be structured in the student's neighborhood to the corner store, grandmother's house, the local bar, and so on. After completing bus travel, lessons dealing with objectives located farther away, such as the student's doctor's office, favorite shopping center, or a friend's house, can be planned by the student to provide further learning situations.

**FAMILY INVOLVEMENT** Family involvement in the student's O&M instruction is highly desirable (Hartung, 1968; Angus, Howell, & Lynch, 1969; Schulz, 1969; Baird, 1961). The family should be given a basic understanding of O&M training. Moreover, they should be trained in basic sighted guide techniques under the blindfold, and they should be invited, with consent of the student, to observe O&M lessons (Code of Ethics, 1974). Also, they should be kept abreast of the student's progress and encourage him or her to be as independent as possible.

To enhance quality rehabilitation services for the visually impaired it is important that O&M specialists be integrated into the rehabilitation team (Head, 1972; Auzenne, 1965; Couchell *et al.*, 1966). The O&M specialist can learn from the rehabilitation counselor and teacher information about the student that is helpful in developing a plan for an O&M program. The rehabilitation teacher often supplements O&M instructions by reinforcing usage of correct O&M skills. The O&M specialist may find that a certain student needs to be referred to the rehabilitation teacher for daily living skills instruction, or would benefit from rehabilitation center training. The O&M specialist can provide information to the rehabilitation counselor and placement specialist regarding the travel limitations, if any, that should be considered when placing a student on a job.

### Public Education Aspects

The Code of Ethics (1974) also states that the O&M specialist should educate the public about the discipline. Auzenne (1965) and Baird (1961) reiterate this point. Since O&M instruction takes place in the community, it is educational for those pedestrians that see it in progress (Arkansas Enterprises, 1966). Furthermore, an O&M specialist has the opportunity to provide in-service training for other professionals working with the visually impaired, such as special education teachers, instructors in private rehabilitation centers, and hospitals. At times the O&M specialist will be able to participate in public education through newspaper articles or television news segments. This education contributes to a better understanding of the rehabilitation process and brings more referrals to the agency (Hubbard, 1969).

**STUDENT CHARACTERISTICS IN TWO PROGRAMS** The following combined statistics from two community based O&M programs located in different cities show important characteristics of students. Variables measured were: (1) the number of long- and short-term students; (2) hours of instruction; (3) the number of students who have or will receive residential O&M training within a year;

(4) age of students; (5) visual acuity; (6) vocational rehabilitation status codes.

In 19 months, 150 students have been evaluated or taught. One hundred and seven were short-term students (under 20 hours of instruction), while 34 were long-term students (over 20 hours of instruction). Nine students were in training at the time of the study. The short term students required from one to 19 hours of instruction, with four hours as the mean. The average amount of instruction for long-term students was 51 hours, with a range of 20 to 167 hours.

Thirty percent of the students have been or will be attending a residential facility within a year. Many more of the students attended a residential facility at some previous time. Students received from 12 to 185 hours of evaluation or instruction at residential facilities. This means that the hours of O&M instruction spent with this type of student in his home community are in addition to other O&M instruction.

The age of individuals who have been students in the community O&M programs have ranged from eight to 83 years old. The average age of the student is 35. Seventy-nine of the students had visual acuities listed as no light perception or light perception only. Sixty-three students had visual acuities better than light perception and the visual acuity of eight students was unknown.

In a vocational rehabilitation agency, clients are assigned certain status codes throughout the rehabilitation process. There are 16 of these codes, beginning with the referral status and ending with a closed status. Thirty-five of the O&M students were in the status code, "closed rehabilitated," 11 were "in employment" the status immediately preceding "closed rehabilitated," and 72 of the former students were coded "in training." Six students were "closed for other reasons," 19 students were in various other status codes, and statuses for seven students were unknown. It appears significant that only six out of the 150 former students have been closed for reasons other than rehabilitated, though no comparisons were made with communities where O&M programs did not exist.

In summary, setting up a community based O&M program in a vocational rehabilitation agency is similar to establishing any O&M program. It is necessary to write goals and objectives, develop lesson plans, order materials, provide in-service training for other agency personnel, and schedule lesson periods and students. Problems encountered when implementing the program are defining high priority students, excessive time spent in travel, cancellations, and providing instructions before or after regular work hours. The advantages of a community based O&M program in a vocational rehabilitation setting include the flexibility of time allotted for training, opportunities to provide pre- and post-residential facility training, ability to involve the student in his training, family involvement, integration of the O&M specialist in the team rehabilitation effort, and public education.

The combined statistics of the two community based O&M programs have shown a great need for short-term O&M services, since over 71 percent of the total clients served needed short-term training or evaluation. Furthermore, the statistics seemed to indicate that O&M in the community aids the rehabilitation process, since only six students out of 150 were closed for reasons other than being rehabilitated. ■

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## How to Meet the Information Needs of Blind Lawyers

A study of the information needs of visually impaired lawyers in Britain has led J. Browne of the Warwick Research Unit for the Blind to the following conclusions: (1) The information gaps of a lawyer are large, and there is a constant need for updating and quick reference. (2) The preferred method for the present meeting of these needs is braille. (3) Lack of storage space precludes lawyers possessing all the braille reference works they would like. However there is a clear need for one or two complete texts such as a precedent book. Until inexpensive compact storage systems for personal use become generally available, there is a need for a fast on-demand service to provide selective listings in braille. (4) Coupled with the on-demand service, more work should be undertaken to find out what legal material is being produced in digital form. Statutes are being produced by this method by Her Majesty's Stationery Office [the British equivalent of the Government Printing Office], and it appears that other material will increasingly be available in this form, thus increasing the source material for the system. (5) Standard forms should be stored centrally, and distributed to lawyers on the same on-demand basis. (6) A good legal journal should be produced regularly, preferably on tape.

Since the technical knowledge for meeting these needs already exists, Browne, who conducted the study, believes that the gaps could be bridged. Nonetheless, it quickly emerged that *all* the needs could not be met by either tape or braille. To help set priorities, an examination of the lawyers' work-methods was undertaken. It became apparent that the most widely used documents were standard forms,

court and registry practice books, statutes and reference texts, and authoritative legal texts.

Documents were used in two different ways. Where quick reference was necessary, or where precise wording of, say, a section of a statute had to be digested, the information was best in braille. Recorded material was satisfactory for information that needed to be read only once or twice.

In the future, reading machines such as the Optacon may help, but at the moment they are too expensive for most individuals. The greatest demand is, therefore, for more documents in braille. Unfortunately, even if mass production were feasible, few lawyers have the space to store more than one or two texts. The logical solution, Browne states, is to hold text centrally and produce sections or abstracts on demand, with perhaps the contents and index circulated to likely users to aid reference.

The preferred storage method, Browne believes, would be to encode materials digitally on either magnetic tape or punched cards. Braille copies could then be produced as needed. (The Warwick Research Unit already has a system that makes it possible to produce fast, inexpensive single copies in Grade 2 braille, of any material stored in computer readable error-free form.) A further benefit of digitally stored material is that the British government, the Royal National Institute for the Blind and some voluntary organizations are already producing information in this form.

Browne proposes to summon a conference of visually impaired lawyers to discuss details of setting up an association which would among other things, set up services related to their needs (providing funds, if necessary).

Undoubtedly, if an information retrieval system for visually impaired lawyers were set up, much more information would become potentially available for blind and visually impaired people in all walks of life.

# Aging and Blindness

**HELEN W. WORDEN**

*Mrs. Worden recently retired as executive director of the Rhode Island Association for the Blind, Providence.*

**Abstract:** *The proportion of older people in the United States population is growing at a faster rate than is the population in general. Since some 50 percent of blind persons are over age 60, there will be almost 300,000 elderly blind persons by the year 2000. The cooperation of several agencies will be necessary to supply services to help older blind persons to remain as competent and independent as possible. A cooperative program of the Rhode Island Association for the Blind and the Rhode Island Division of the Aging is described.*

**Note:** *This article is based on a speech delivered at a seminar, "Services to Blind Persons in New Hampshire," held June 7-9, 1976, and co-sponsored by the New Hampshire State Service to Blind Persons, New Hampshire Association for the Blind, and the American Foundation for the Blind.*

Within the past several years attention to the aging visually impaired population has increased at a rapid rate. Why should this be? The key to the issue is the changes that are occurring in our society. The family structure is no longer that tight little unit that cared for its own. The aged blind person must fend for himself or herself or be institutionalized. Community agencies must work together to provide services to assist these individuals to remain as competent and independent as possible. As we will see, no single or two agencies can accomplish alone what needs to be done. A larger complex of agencies and individuals will need to be involved if the results are to be truly effective.

**AN AGING SOCIETY** Ours is an aging society. We are told that 50 percent of all blind persons are age 65 and over and that 60 percent are age 55 or over. For these reasons an article in the June-July 1975 issue of *Aging* magazine on population trends in the United States is of special interest to those concerned with the aged blind.

Speaking of the general population, it points out that as of July 1, 1974 the U.S. population was 211 million. By the year 2000 it is expected to be between 247 and 287 million. There was a four percent growth of the general population between 1970 and 1974, but a growth of nine percent in the elderly population. Three factors are said to account for this: decreases in the birth rate, in the death rate, and in the influx of young immigrants to this country. The population that will be age 60 and over in the year 2000 has already been born. It is projected this group will comprise 41 million people—an increase of 31 percent over the 1974 level.

When one applies the estimated rate of 225 blind persons per 100,000 population, presently this computes out to 474,750. Taking a median figure of the estimate projected for the year 2000 there will probably be 598,500 blind persons in the population. Using the estimate that 50 percent of blind persons fall into the category of aging in 1974 there were approximately 237,375 geriatric blind persons and there will be 299,250 by the end of the century.

These figures indicate the staggering job we are facing if we are to provide these people with what is their right. We have made a beginning, but services are spotty and not of uniform quality.

## Correlation Between Aging and Blindness

Why is there this correlation between age and visual loss? When one examines the causes of blindness one finds the four major diseases responsible for blindness are also problems of aging—diabetes, macular degeneration, glaucoma and cataract. Hence, the growing emphasis on assistance to the geriatric blind population. The needs of this group are recognized to be the needs of the general population of older persons on which are superimposed needs resulting from visual loss. However, as was said previously, what is needed is not uniformly available.

Realizing the seriousness of the problem, the American Foundation for the Blind has developed a policy statement entitled "Aging and Visual Loss" which states:

It is generally agreed that in today's society the older population is a victim of social neglect. A good portion of that population is visually impaired—some have been blind since birth; others are newly blinded; and still others are confronted with a gradual visual decline (which interferes with their ability to function independently). . . .

. . . an agency for the blind must work in concert with all other community agencies toward improving the life pattern for senior citizens. . . .



Special to agencies for the blind is the obligation to assume an advocacy role and make certain that groups within the community are fully aware of the unique needs of people who are blind. To the community's total effort, the specialized agency contributes special services needed to facilitate the blind person's use of the general resources available.

Hence, we see the needs of the aged blind encompass not only the agency working with blind persons, be it in the public or private sector, but the entire complex of services within the community, rendered on local, state, and national levels. As we will see, even this totality may not be adequate.

### Needs of the Older Blind Population

What are the needs of the older blind population? In general, they are the same as the rest of the population taking into consideration the fact that with age certain problems develop and that blindness increases these. Jeanne Gilbert in her article "Old Age and Blindness—Research Needs" points out:

This research on aging shows that there is a gradual and general physical deterioration of all organs and systems of the body. The result is a decline in the efficient functioning of the body—organs become sluggish in their activity, reaction slows down, and endurance lessens. Although the eye is one of the most efficient organs of the body, changes occur here also . . . These degenerative changes increase as age advances, and lead to a gradual decline of all measurable visual functions.

Dr. Douglas C. MacFarland, addressing a research conference in Washington, pointed out the responsibility of service agencies not only to assist the geriatric, visually impaired in their adjustment to their handicap, but also to make possible their integration into the mainstream of the community. He declared:

Full participation in society is the capstone of all our social action programs today. This goal for the older blind or visually handicapped citizen is attainable, and we should devote all our energies to achieving it.

Earlier papers have addressed themselves to what blindness is and what it does, attitudes toward blindness, and to the rehabilitative process. However, if we are to discuss the aging blind we need also to talk about attitudes toward the aging and what are some of the problems aging presents as well as what is the relationship of aging and blindness. Needs of the aging blind must also be discussed before programs to assist them to normal life patterns can be considered, since we must first realize with what we are dealing before it can be effectively and efficiently handled.

Ours is a youth centered culture that worships bodily perfection and performance. Is it not natural then that the aging are seen as dependent, depressed, incompetent and non-productive? Just as blind persons tend to be lumped as a group with common limitations and attributes, so are the aged. There is a failure to recognize the fact that neither age nor visual capacity *per se* are factors that determine a person's capacity for growth, rehabilitation or productivity. Both blind persons and aging persons constitute a minority group—there are the same minority-majority prejudices toward these groups as towards other minority groups in our society. The negative connotation results from the fact that both groups are subject to those losses that interfere with obtaining or holding on to those things in life that are the

status symbols in our society: Good health, bodily perfection, mental alertness, financial security, competence to work, maintenance of an appropriate familial role, ability to relate socially, and to maintain normal patterns of friendship.

This is illustrated by the fact that workers with the geriatric blind are often myopic in their planning for the elderly blind. They see the life span of the aging person as relatively short, therefore many valuable services such as low vision services, orientation and mobility programs are not considered and thereby are denied.

**ATTITUDES OF AGING PEOPLE** Attitudes of the aging are also influential factors. They many times express anger and hostility about the changes aging creates (health, work, dependency, and so on). They often feel old age is the least satisfactory period of life. Often there is preoccupation with the imminence of death. There is a tendency for the elderly person to blame others for his (unrecognized by him) incompetencies. The aging person may feel anxiety over personal health, whether or not it is realistically based. A feeling of neglect, loneliness and uselessness may pervade.

A person's feeling toward this period of life, and about himself in particular, depends not merely on calendar age but also on his physical health, outward appearance and how he is treated by others. Older persons who are financially secure and capable of being relatively independent, most frequently have more positive attitudes toward life as an aged person.

The attitudes of the geriatric blind person toward life in general and services and programs in particular are extremely important to his adjustment activity and life satisfaction. Unfortunately the elderly, like the community in general, tend to perceive old age as that time of life in which one not only retires from work at a certain age, but from community participation as well. This feeling is reflected in their attitude as they reach the autumn of life. The manifestation of this attitude is a lack of motivation and a resistance to services and programs available through which life for them could become more meaningful.

**ATTITUDES OF PRACTITIONERS** Attitudes of the practitioners with whom they come into contact are equally important. The practitioner should know his attitudes toward blindness and aging as well as toward geriatric blind persons so that he may be certain his unconscious and conscious thoughts will not negatively affect his relationship with and assistance to the geriatric blind person he seeks to serve. He should also give thought to the role of others involved in the situation, including family, friends and other practitioners. This is well summed up in the phrase—know thyself—change or cope.

As has been previously said, availability of services for geriatric blind persons varies from community to community with regard to the gamut of services available, their quality, and the settings in which they are offered. Frequently one must look to the agency serving the visually handicapped for certain services and to those serving the aged for others. Many times services needed by this group may not be secured from either of these types of agencies, but from groups, individuals, or societies that do not have the geriatric blind as their prime concern (other social agencies, church groups, civic organizations, community action groups, etc.). This is healthy, providing the services are coordinated. Geriatric blind persons should not be isolated as a group, but



# **“The practitioner should know his attitudes toward blindness and aging . . . so that [they] . . . will not negatively affect his relationship with . . . the geriatric blind person he seeks to serve.”**

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should be integrated as often as possible. Directories published by local planning groups are an excellent index to the variety of resources available within a community to meet the needs of the geriatric blind individual.

## **Needs of the Older Blind Person**

What are these needs we have been talking about?

1. *Health Care*:—The availability and accessibility of adequate health care services on both public and private levels. Medicare and Medicaid do much to assure this but provision must be made for those who do not fall within the scope of these programs. An annual physical examination should be given and for those with visual problems, a complete ophthalmological examination should be provided. Where sight loss has occurred the use of low vision lenses should be explored.

2. *Housing*:—For many older persons, including the blind, change in housing needs becomes a problem. However, the transition to another environment can often be delayed through specialized programs in personal care and new techniques of self-maintenance. Wherever possible, attention should be given to minimizing those structural factors which create problems. A ramp may eliminate necessity to use stairs, doors widened to accommodate wheelchairs or walkers, lower shelving provided in kitchens and safety bars installed in bathing facilities. Where movement to another facility which provides personal care becomes involved, personnel of the facility should be instructed in the needs and care of older blind persons as well as in the capacities and capabilities of the individual.

3. *Income Maintenance*:—Persons in the aging blind population are often in the low-income level. Many are recipients of some form of financial assistance. Attention needs to be given by all sectors of society to provision of more adequate levels of income for the older group. At this time of life there often occur more expensive specialized needs, such as special diets and personal assistance, which must be purchased.

4. *Employment Opportunity*:—Not all older blind persons lack the desire or are incapable of working for remuneration. They should be provided this opportunity if they so desire. This may be on a part- or a full-time basis. For those for whom income is a secondary consideration, opportunity to volunteer their talents should be assured.

5. *Socialization*:—One of the most serious gaps in service to the older blind person is the lack of opportunity for social participation. This is not because programs and services to meet this need do not exist within the community. Fre-

quently, this group is not included, is unwelcome, or is forgotten, and thus isolation occurs. Agencies serving this population should give greater attention to this area and if problems such as inadequate mobility contribute to the situation, specialized programs to provide assistance in maximizing ability to get about independently should be developed if they do not already exist. The same is true of communication skills. Transportation should be arranged when necessary.

6. *Self-Care*:—Opportunity to learn self-care skills, including housekeeping and home care, nutrition and socialization should be available.

7. *Supportive Services*:—These should be provided to ensure assistance with problems to be faced not only by the individual himself, but also by the “family” with which he is involved. (I use the term family in its broadest sense.) Knowledge of the many resources available to the elderly blind person constitutes an invaluable contribution to the adjustment he or she will make.

8. *Mobility*:—Ability to be mobile includes training in mobility through use of human guide techniques or use of the “long-cane” or other devices appropriate to the individual’s needs and capabilities. It may also require the provision of special transportation services provided by the community and through the use of the services of volunteers.

How well are these needs being met? In its brochure “How to Integrate Aging Persons Who Are Visually Handicapped Into Community Senior Programs” the American Foundation for the Blind points out:

The desolation that so often comes with being old in this society was not planned, ‘It just grew.’ It grew from increased life expectancy, enforced retirement, cost of living, housing and life styles that discouraged close multi-generation extended families. And it was a reality before steps could be taken to prevent it.

Donald A. Schon in writing of the blindness system tells us:

“... we have begun to learn not only how hard it is to change inadequate service systems but also how difficult it can be to understand them in the first place.”

With this in mind we can understand why service is spotty and not uniform from community to community. This is where the challenge lies for agencies serving blind persons and those serving the aged to combine their forces and lead communities to more adequate and appropriate service systems. This is not an idle dream but is an emerging reality. Geriatric blindness is now among the major concerns of not only the blindness system but within the aging system also. What is even more encouraging is that these concerns are not in isolation, but are a cooperative effort.

The activity of the American Foundation for the Blind through its National Task Force on Geriatric Blindness has given a positive, strong impetus to this development. William C. Fitz, in speaking about the “Special Concerns Sessions” report on aging and blindness that resulted from the White House Conference on Aging, summarized its recommendations to a group participating in the AFB’s New England Conference on Aging and Blindness as follows:

1. Congress should increase old age survivors and disability insurance and the adult public assistance categories to the inter-



**“Statistics in and of themselves prove nothing, but when interpreted in terms of individuals giving and receiving services they represent an important component of community participation.”**

mediate level of living recommendations by the Bureau of Labor Statistics.

2. The National Eye Institute and other interested organizations on a national and local level should combine their efforts in urgent overall preventive programs, develop better statistics, and increase the number of low vision centers.
3. Broaden the Vocational Rehabilitation Act to make rehabilitation services available to blind persons without regard to age or economic need.
4. All modes of mobility and transportation for obtaining the essentials of daily living and the cultural and social benefits of modern society should be made accessible to the elderly, including the blind and handicapped.
5. Develop a network of personal care benefits for individuals with a certain level of functional disability to enable the older person to purchase whatever services are necessary to help him remain in his own home, if he so wishes.

We have seen progress made with respect to many of these recommendations but perhaps even a more significant development was contained in an Information Memorandum from the Commissioner on Aging, Arthur H. Flemming, on March 25, 1975. It was directed to state agency administrators of plans under the Older Americans Act. Attached was a copy of a joint working agreement between the Administration on Aging and the Rehabilitation Services Administration. The agreement states as its general purpose: “To further the Secretary’s priority on aging which is the improved delivery of coordinated health and social services for older people.”

Underlying premises were that,

Local communities be encouraged to include in their plan for coordinated services for older people programs designed to assist in rehabilitation of the elderly handicapped; to help the elderly handicapped remain in their own homes or other places of residence; and to provide the elderly handicapped with opportunities for continued involvement in life through full-time, part-time employment through volunteer activities.

The agreement goes on to state:

Meeting the special needs of older persons who are visually handicapped, deaf or otherwise disabled will require the cooperation of RSA and AOA, so that HEW resources available for older people will be coordinated and that planning and developing comprehensive services at the community level takes place.

The most important section of the agreement for many agencies lies in paragraph “C” of Section 4 “Areas for Collaboration.” It states:

Special efforts will be directed to coordinating public and private agency programs to maximize services to special aging populations, i.e., handicapped by blindness, deafness, and mental illness. RSA will take the lead in developing rehabilitation methods and AOA

will take the lead in applying social gerontology knowledge to the problems faced in this population.

Thus, the conviction of many within both the blindness and aging fields, that there is a need for both to work together to solve the problems common to those which each serves, has become a mandate.

### **The Cooperative Service in Rhode Island**

The potential of such cooperative service can be illustrated by a cooperative arrangement in 1973 between the Rhode Island Association for the Blind and the Rhode Island Division of the Aging. The Association submitted a proposal to the Division of Aging for a program to initiate an Adjustment Center for Visually Impaired Geriatric Persons. Financial support was sought for the project that would attempt to provide the geriatric blind population with services to keep them independent and to help them maintain their own homes rather than become custodial care recipients.

The Division of Aging granted a request for support of the project and on October 1, 1973 the project was begun. Subsequently, a rehabilitation teacher and an aide were hired and the necessary equipment was purchased to teach the geriatric blind population independence to the greatest degree possible. The program was designed as one which would involve teaching sessions at Association headquarters on a three day a week basis with the other two days being spent by staff in the homes of enrollees in transference of the skills learned at the Center to the home environment. It was planned there would be 4-6 people enrolled at a time, with a 12-week completion of the program as a goal. However, it was soon learned the time involved needed to be adjusted to the abilities and needs of the students and now there is a flexible schedule adjusted to individual requirements.

Skills taught are those of self-care, homemaking (including nutrition and appropriate diets), communication, orientation and mobility as well as socialization and recreation. The range of skills taught involves both the agency setting and the community at large. Work opportunity is afforded in the Association’s work adjustment and training center. Initially, the program was financed by a grant from the Division of Aging in the amount of \$14,125 and in-kind support by the Association in the amount of \$16,050. The Association’s contribution supplied the ancillary and domiciliary space and services necessary. These included a staff comprised of social workers, orientation and mobility specialists, a low vision specialist, a psychologist, workshop specialists, and a corps of volunteers indispensable to the operation. Grant funds from the Division of Aging primarily provided for employment of a rehabilitation teacher, an aide, and supplies and equipment without which the program could not have been operated. Equally important were the efforts of the public relations staffs of each agency in their cooperative and successful efforts to make the general “publics” and the aging blind population aware of the value and availability of the program to those who could benefit.

In the first year of operation, 122 visually impaired elderly persons were screened for the program. This represented a cross-section of 21 of the 39 cities and towns in Rhode Island. In the second year there were 113 persons screened from 23 cities and towns. From January 1974 to September 1975, 28 individuals had been “graduated” from the program with nine persons active in the program at the end of its second year of operation. Twenty-four were in the follow-up status, three in process of evaluation, eight pending service



after medical clearance, and four in interrupted service and on medical leave. 1,502 individual transportation services have been provided, 72 screenings at the Association's Vision Rehabilitation Service, 96 health examinations, 427 activities of daily living sessions conducted, 731 individual sessions of volunteers' services provided, and 187 individual sessions in orientation and mobility conducted.

Statistics in and of themselves prove nothing, but when interpreted in terms of individuals giving and receiving service they represent an important component of community participation. A very superficial review of community agency activity in the program revealed more than 40 that participated to make the program meaningful and a success.

As a result, a large portion of those who were exposed to the program maintained their own homes independently and with self-confidence; several are employed in the Association's workshop on a part-time basis commensurate with their desires and capabilities. Many find their recreation and socialization needs fulfilled at local centers for the elderly or

with church affiliated groups. Many among the group serve as volunteers both in the community and at the Association.

Agencies of the blind and agencies serving the aging population must work in cooperation if this kind of success is to be realized. I have picked this example of the kind of cooperative arrangement that is necessary for successful programs. However, I do not want to imply that this program is an invention of just one or two agencies, although it does have its distinctive features. Rather, I want to convey the thought that plans of this agency and similarly those in Buffalo, New York City, Syracuse, Long Beach, and Rochester, New York are examples of the kind of programs that can be set up in any progressive community. Each of these was established prior to the HEW, AOA agreement to which I referred earlier. The main point is that geriatric blind persons can and should be provided with services necessary to make themselves self-sustaining, contributing members of our society. To achieve this, each of us in the field of blindness will have to take the responsibility to see that it happens. ■

## Tactual Guide to Campus

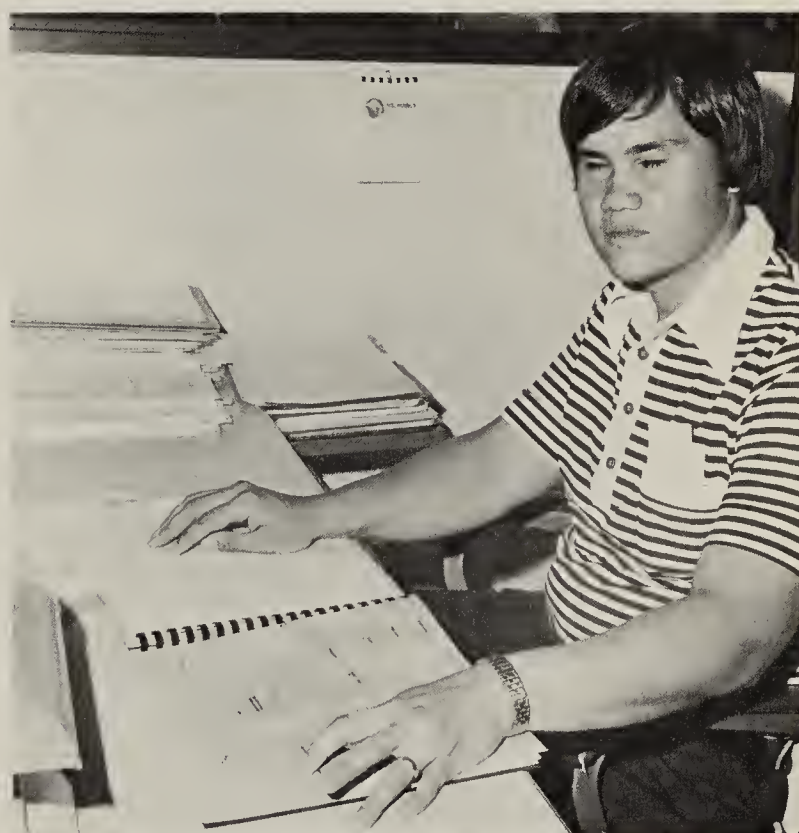
Visually handicapped students coming to Oklahoma State University this fall will find it easier to move about the campus because F. Cuthbert Salmon, an OSU architecture professor, has developed a six-part tactual guide to the campus, complete with three-dimensional maps and braille instructions.

OSU is the first educational institution in the state to offer a ready "handout" to blind students enrolling on an unfamiliar campus. The books are given to the students well ahead of the class-reporting date, providing the students with ample time to orient themselves before classes begin.

The tactual guide for the visually handicapped is a convenient, 11 in. x 12 in. book with both visual and relief maps side by side. Should a difficult situation arise, a sighted person can assist the visually handicapped person to identify buildings and streets on the relief maps.

All buildings are shown in relief and reflect the actual plan of the structures. Major walkways, vehicular traffic, streets, auto parking and bicycle paths are represented as textured surfaces. Maps have been simplified to permit ease of tactual comprehension. Buildings and street names are designated in braille on the relief maps and an explanation in braille is given in the legend on the opposite page visual map.

The maps are made available to the visually handicapped students through the Oklahoma State University Rehabilitative Services.



The campus at his fingertips.

## The Index for Volume 70 of the New Outlook (1976) Will Be in the February 1977 Issue



# State Certification Requirements for Teachers of the Visually Handicapped

**SUSAN JAY SPUNGIN, Ed.D.**

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Not since the work of Mackie and Dunn (1954) and Abeson and Fleury (1972) has there been a thorough investigation of how states issue special certificates for teachers of the visually handicapped. The author undertook the compilation of this type of material not only to obtain general information, but also to document national trends in the upgrading of teacher preparation and programs for visually handicapped children and youth.

At the present time, only four states, plus the District of Columbia, do *not* require special certification for teachers of the visually handicapped. Forty-two states require at least a Bachelor's degree, and three states require a Master's degree. Thirty-four states indicate that either a regular elementary or secondary certificate is required prior to special education certification, implying that regular education experiences are a necessary prerequisite for special educators.

We have come a long way from 1954, when only 20 states offered certification to teachers of the blind or partially sighted. The vast majority of these states required a Bachelor's degree in regular teaching, with anywhere from 8 to 28 semester hours in the specialized area of education for the visually handicapped. Joint certification of teachers of the blind and partially sighted was the exception rather than the rule with 16 out of the 20 states issuing a distinct and separate credential for the partially sighted. Historically it is not surprising to see teachers of the partially sighted certified by almost twice as many state departments of education as are teachers of the blind since, at that time, 75 percent of all blind children were enrolled in residential schools.

As more and more blind children are mainstreamed into the regular public school program, fewer states seem to demand separate certification for teachers of the blind and partially sighted. Abeson and Fleury report that by 1972 only ten out of the 44 states reporting required separate certification for teachers of the blind and partially sighted. One suspects that this may reflect the economics of special education program planning for low incidence handicapped populations, as well as the growth of programs in professional preparation. At present, in some states one finds that certification to teach the visually handicapped is part of an overall credential to teach the physically handicapped. This trend to more broadly defined procedures for awarding credentials deserves close scrutiny to ensure that the special skills that are essential for teaching the visually handicapped school age population do not become lost, or glossed over as being nice but not necessary.

The following listing is not intended to provide information about all aspects of certification requirements, but to help those attempting to obtain preliminary information and to answer many initial questions. This document will be updated in order to keep it as current as possible. ■

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**Abstract:** *Provides state by state information on the degrees and courses required for certification as a teacher of visually handicapped children. Only four states and the District of Columbia do not require special certification, 42 states require at least a bachelor's degree, and three states require a master's degree.*

**State Certification Requirements for Teachers  
of the Visually Handicapped**

State	Degree	Courses†	Certificate(s)	Duration of Certificate Validity	Renewal Procedures	Provisional Certificate Available?	Duration of Provisional Validity
AL	Bachelor or Masters	1, 4, 6, 7, 8, 9, 18		8 years		Yes	1 year
AK	Bachelor or Masters	Does not have specific requirements as it is dependent upon training format	Approved training format for certification	5 years	For another 5 yrs. if completes 6 hrs. approved credit	No—under consideration	
AZ	Bachelor or Masters	Major in Ed. of the V.H. or Major in Ed. plus 25 sem. hrs. in Ed. of the V.H. 3,6,7,8*,14,15,18**	AA Certificate from AEVH	6 years	Continuous teaching or authorized leave	Yes	1 year; may not be renewed
AR	Bachelor	1, 3, 6, 8, 10, 18	General elementary and/ or secondary education	6 years	None	No	
CA	Masters	1, 6, 7, 8, 11, 12, 13, 15, 17	General Elementary and/ or secondary education	2 years then life	Every 2 yrs. until a clear credential is secured, then life credential can be secured	Yes	1 year
CO	Bachelor or Masters	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 17, 18, 19, 20, 21	Valid Colorado Teachers Certificate	5 years	Required to complete 9 quarter hrs. of advanced study	Yes, 9 quarter hrs. per year with intent to complete endorse- ment requirements after four years	
CT	Masters	6, 7, 13, 15	BA or BS in elementary or secondary education		Renewed for a period of four yrs. on evidence, in the form of transcripts, of removal of the deficiency	Yes	1 year
DC			BA or BS in elementary or secondary education		Renewal of certificate every 5 yrs. by taking 6 hrs of college credit	Yes	2 years
DE	Bachelor	1, 5, 6, 7, 8, 15				No	

\*Or 2 years successful teaching of the visually handicapped.

\*\*Must include reading, decoding skills, language arts, science and arithmetic.

†For course listing see p. 445.



**State Certification Requirements for Teachers  
of the Visually Handicapped (Continued)**

State	Degree	Courses†	Certificate(s)	Duration of Certificate Validity	Renewal Procedures	Provisional Certificate Available?	Duration of Provisional Validity
FL	Bachelor	1, 4, 6, 7, 9	General elementary and/ or secondary education		Renewal of a certificate by taking six hrs. of college credit	Yes	
GA	Bachelor 1, 6, 7, 8, 9 or Masters		A certificate to teach elementary or secondary ed. with an endorse- ment in the area of the visually impaired; (25 hrs.) or a certificate granted upon recommendation of institution with a certification program in the area of visually impaired.	3 years T-4 5 years T-5	10 quarter hours in field	Yes upon local Supt's. request	1 year until 1978
HI	Bachelor or post-graduate teacher training program	18 hrs. course work related to the understanding & teaching of the visually handicapped		Valid for the duration of employment with the Dept. of Ed. unless revoked			
ID	Bachelor	1, 2, 3, 7, 8, 12, 14, 15		5 years	Only renew- able once	Yes	3 years
IL	Bachelor	1, 6, 7, 8, 13, 15, 19, 20	Teaching certificate Standard special (Type 10)	Valid indefin- itely when renewed yearly and reregister every 4 years	Renewable yearly	Yes—only if certified in the blind/ partially sighted in another state	2 years
IN	Bachelor	Presently require applicant to obtain sponsorship from a university with a certification pattern in the area of the visually handicapped			6 hrs. work in the area of the visually handi- capped	Yes	5 years
IA	Bachelor	Completion of approved program	General elementary or secondary edu- cation or K-12 Special Education	10 years	6-8 semester hrs. hrs. every 10 years	No	N/A

†For course listing see p. 445.

**State Certification Requirements for Teachers  
of the Visually Handicapped (Continued)**

State	Degree	Courses†	Certificate(s)	Duration of Certificate Validity	Renewal Procedures	Provisional Certificate Available?	Duration of Provisional Validity
KS	Bachelor or Masters	1, 6, 7, 8, 11, 14, 15	Kansas Teacher Certificate	3 years	Minimum of 6 semester hrs.	Yes	1 year
KY	Bachelor	1, 4, 6, 8, 9, 15, 18	General elementary or secondary educa- tion	10 years	Regular certificate requires a MA or 30 hrs. planned program after 10 years	No	
LA	Bachelor	1, 2, 3, 6, 7, 8, 16, 19	Standard Louisiana certificate to teach in the elementary or secondary schools	Type C Certificate (3 years) Type B after 3 years (valid for life)		Yes	1 year
ME	(No specific requirements)						
MD	Bachelors degree plus (or including) 30 semester hrs. in teaching the visually handicapped or Eligibility for certification in early childhood, elementary, or secondary education						
MA	Bachelor or Masters	2, 6, 7, 8, 15, 18	Regular elementary or secondary general teaching certificate		Have not been considered		
MI	Bachelor	1, 6, 7, 15, 16, 18, 20, 21 20, 21			10 semester hrs., good for 3 yrs. then may renew 1 more time then qualify for contin- uing certificate. Continuing certi- ficate requires 18 semester hrs.	Yes	6 years
MN	Bachelor	1, 3, 6, 7, 8, 9, 15, 18, 20	Elementary or secondary teach- er's certificate valid for teaching sighted children and endorsement in visually im- paired		Entrance cert. valid 2 yrs. Continuing cert. valid 5 yrs.—1 yr. successful exp. 120 renewal units	Yes	2 years and may not be renewed.

†For course listing see p. 445.



**State Certification Requirements for Teachers  
of the Visually Handicapped (Continued)**

State	Degree	Courses†	Certificate(s)	Duration of Certificate Validity	Renewal Procedures	Provisional Certificate Available?	Duration of Provisional Validity
MS	Bachelor	2, 6, 12, 15, 18	Only certified for partially seeing		6 semester hrs. or eight quarter hrs. in courses related to one's special field		
MO	Bachelor or Masters	1, 2, 3, 6, 7, 8, 12, 15, 18, 20	Elementary or secondary ed. unless they have a degree with a major in the edu- cation of the blind or partially sighted		8 semester hrs. toward full cert.	Yes	2 years
MT	Bachelor or Masters		5 years. The State Dept. of Public Instruction does not have special certification for teachers of the visually handicapped nor for the teachers of the hearing impaired. Teachers are required to have special certification to teach the visually handicapped, which is sent to the State Dept. of Public Instruction to be certified as elementary and/or secondary teachers.				
NB	Bachelor	3, 4, 6, 7, 8, 14, 15, 19, 20	Certified in general ele- mentary and/ or secondary education with an endorsement in the teaching of the visually handicapped	Prestandard certificate 5 years	6 hrs of college credit for renewal or 3 yrs. of success- ful exp. for advanced certification and renewal	Yes	1 year
NV	Bachelor or a valid cert. en- dorsed for teaching the ele- mentary or secondary grades	1, 2, 3, 7, 8, 9, 11, 13, 15, 17, 18, 20		5 years	6 semester hrs. or the equivalent		
NH	Bachelor or Masters	Grad. from an approved training program	General elem. and/or secondary education with specific training in the educa- tion of the Visually Handicapped	5 years	Participation in the local District Staff Devel. Plan is required	None	
NJ	Bachelor also an endorse- ment to teach the blind	2, 7, 13, 15, 18, 20	General elem. and/or secondary education	Indefinite	None	Yes	Indefinite

†For course listing see p. 445.

**State Certification Requirements for Teachers  
of the Visually Handicapped (Continued)**

State	Degree	Courses†	Certificate(s)	Duration of Certificate Validity	Renewal Procedures	Provisional Certificate Available?	Duration of Provisional Validity
NM	Bachelor	1, 8, 11, 15	General require- ments for elem. or secondary Teaching Cert. and/or under- graduate endorse- ment in special education	4 years	8 semester hrs. during 4 yr. period to qualify for renewal	Yes	Until endorse- ment require- ments are met
NY	Bachelor or Masters	4, 6, 7, 8, 11, 13, 15	Elementary/ secondary teacher cert. with specific requirements in area of visually impaired.	Permanent		Yes	5 years
NC	Bachelor or Masters	1, 11	General elemen- tary and/or secondary education	5 years	6 semester hrs.	None	
ND	Bachelor	1, 6, 8, 9	N.D. teaching certificate	valid for life	None	Yes	1 year
OH	Bachelor	3, 7, 8, 14, 15	Same as N.Y.		6 semester hrs. of refresher training pertinent to this field of teaching or suc- cessful teaching	Yes	5 years
OK	Bachelor	6, 8, 18		5 years	One who holds an expired profes- sional or standard cert. is not eligible for a provisional cert. of the same type but is required to meet require- ments for its renewal or a new professional or standard certificate	Yes	3 years
OR	Bachelor	Completed sufficient course work in the education of blind or partially sighted	General elem. and/or secondary education	5 years	Renewed annually for a period of 3 yrs. after which time the applicant is required to have completed sufficient course work in the area of the educa- tion of blind	Yes	1 year

†For course listing see p. 445.



**State Certification Requirements for Teachers  
of the Visually Handicapped (Continued)**

State	Degree	Courses†	Certificate(s)	Duration of Certificate Validity	Renewal Procedures	Provisional Certificate Available?	Duration of Provisional Validity
PA	Bachelor (No specific courses required)		General ed. and ed. of visually handicapped		None	Level I Certificate	3 years
RI	Bachelor 1, 2, 6, 7, 8, 15, 17		General elem. and/or secondary ed. before eligible to teach the blind	Permanent	None	Yes	6 years
SC	Bachelor 1, 4, 15, 18		Professional Certificate and Certificate for teachers who have a Professional Certificate in another area	5 years	Upon completion of 6 additional semester hours, to be earned within this 5 year period	Yes	1 year
SD	(No certification requirements)						
TN	(No response to inquiry)						
TX	Bachelor 1, 7, 8, 18		Elementary or secondary education before eligible to teach visually handicapped	Permanent	Only if a teacher is teaching on a Permit for Special Assignment		
UT	Bachelor 1, 6, 7, 8, 13, 15, 19		Elementary or secondary educ. before eligible to teach visually handicapped	5 years	For an additional 5 years with the completion of 9 quarter hours	No	
VT	Masters (Did not list course requirements)		None. Resource Consultant for the V.H. Endorsement on Regular Certificate	2 years	2 yrs. successful experience = professional standard 5 yrs. successful experience = professional continuing	Yes	2 years
VA	Bachelor 1, 2, 4, 6, 7, 8, 9, 14, 21		Certificate to teach elementary or secondary school with an endorsement in the area of visually impaired	5 years	Renewable for a five year period		

†For course listing see p. 445.

**State Certification Requirements for Teachers  
of the Visually Handicapped (Continued)**

State	Degree	Courses	Certificate(s)	Duration of Certificate Validity	Renewal Procedures	Provisional Certificate Available?	Duration of Provisional Validity
WA	(Does not have specific cert. requirements) Presently in the process of setting up new certification program.	Certificate to teach elementary or secondary school	(It is the prerogative of the school district to require specific competencies of teachers hired for specialized areas, such as blind, deaf or other handicaps.)				
WV	Bachelor	3, 6, 7, 9, 13, 14, 15 17, 19	General elementary and/or secondary education	5 years		Yes	3 years
WI	Bachelor or Masters	6, 7, 8, 12, 14, 15, 16	Certified in general elementary and/or secondary education with an endorsement in the teaching of the visually handicapped or orientation and mobility from an approved training institution. Acceptance of other state where reciprocity is indicated.	6 semester hrs. of college work between the date of the issuance of one year and the date of renewal. (For regular certificate)		Yes	Length of provisional cert. and renewal requirements vary with need and position to be filled-usually one year
WY	(Does not have teachers who are certified to teach the blind.)						

**Key to Courses**

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Survey course in education of exceptional children</li> <li>2. Psychology of exceptional children</li> <li>3. Survey of education of visually handicapped children</li> <li>4. Nature and needs of the visually handicapped</li> <li>5. Child growth and development</li> <li>6. Anatomy, physiology and hygiene of the eye—including educational implications</li> <li>7. Communication skills: braille codes, listening, reading and writing</li> <li>8. Practicum with the visually handicapped</li> <li>9. Educational procedures for the partially sighted</li> <li>10. Advanced educational procedures for the partially sighted</li> </ol> | <ol style="list-style-type: none"> <li>11. Principles of counseling exceptional children and their parents</li> <li>12. Language and speech development for exceptional children</li> <li>13. Social, psychological, and vocational problems of the visually handicapped</li> <li>14. Orientation and mobility</li> <li>15. Curriculum and methods of teaching the visually handicapped and/or partially sighted</li> <li>16. Arts and crafts for the visually handicapped</li> <li>17. Services and programs for the visually handicapped</li> <li>18. Electives related to the education of the visually handicapped</li> <li>19. Tests and measurements for exceptional children</li> <li>20. Typewriting for the visually handicapped</li> <li>21. Mental hygiene</li> </ol> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



# Comment

*A special forum for individuals to respond in detail to material published in the New Outlook for the Blind or elsewhere, to present new ideas, or to raise issues that relate to the specialized field of work with blind and visually handicapped persons. Contributions should be 350-1000 words in length.*

## Effective Use of Readers

### Nancy E. McGary

I have been working with blind and visually impaired clients in a rehabilitation agency and have helped some of them locate, train, and manage readers. When first trying to aid clients in this area I sought guidance from my supervisors and from the literature. Unfortunately, little comprehensive information was obtained from either source. Various agencies serving the blind and visually impaired were also contacted with little more success. After discussing the problem with colleagues and finding out about their experiences with similar frustrations, it was decided that a set of "guidelines" would be developed in the form of an article and offered for publication. The intent was simply to provide a starting point, in the hope that more comprehensive guidelines can be produced in the future.

I interviewed numerous blind and visually impaired professionals and conducted group discussions in which suggestions and recommendations were made. I myself am legally blind and have employed over twenty readers. Other participants had had more; some of the students had had fewer.

### Ancient Communication Tool

Each blind and visually impaired person depends on a wide variety of tools in order to function in the sighted world. Father Carroll in his book, *Blindness, What It Is, What It Does, and How To Live With It*, states, "The human substitute, who reads and writes for a blind person, is the most ancient of the communication tools." Although human readers have been around for the longest period of time, and are probably the most widely used communication tool, they are not always the easiest to work with; they all too often exhibit the frailties of their species. They can be overly independent, tired, hungry or thirsty; often at times that are inconvenient to the blind person's schedule. The human reader is not usually as available as brailled materials are. And he or she is not as manageable as a tape recorder. Although the human reader can be the most helpful of the communication tools available to the blind, he can also be the most difficult and frustrating to work with. In all fairness, it has to be admitted that visually impaired people have their bad moments too.

The only way most blind and visually impaired people learn how to handle readers is by the painful route of experience. Many have suffered the loss of a valuable lecture which was on a tape or cassette that an otherwise excellent reader recorded over. This was the result of not being aware of the necessity to check all

previously used tapes for content before recording on them. Others have had to endure the pain and frustration of having to fire a reader late in a semester or towards the end of an important project because the reader was not dependable. This often entails letting go a reader who has a major portion of the completed work still in his or her head, so requiring the blind person to begin all over. It is hoped that the suggestions and recommendations in this article will serve to preclude such events in the lives of future employers of "readers."

### Locating a Reader

Locating a reader offers a challenge at times, but can usually be accomplished if one starts early and explores some or all of the following: Posting notices on campus bulletin boards; contacting the disabled student services, student employment services, state employment office, and local agencies serving the blind and visually impaired; posting notices in local laundromats; and informing the apartment manager and the Avon Lady. At the first meeting with prospective readers, the blind or visually impaired person is advised to have a sighted relative or friend with him. To find a reader simply requires work, but to identify a good one requires considerable skill.

### Responsibilities of the Employer

It is recommended that the blind or visually impaired employer of readers assume, to the best of their ability, responsibility for assuring that the reader:

Understands the amount of the fee to be paid for his or her services and is willing to work for that amount.

Understands and accepts his position as that of an "employee."

Has the required abilities to do the work, i.e., is sufficiently literate.

Is not motivated primarily by either a "Lady Bountiful" or "Good Samaritan" complex. Such persons usually will not stay in the "employee" role.

Is, if necessary, willing and available to work at unscheduled times in emergency situations.

Has, if required, his own transportation.

Can either type or print legibly.

Knows, or is able to learn, how to operate recording equipment.

It is further recommended that the blind or visually impaired employer assume responsibility for the following with regard to their own role in reader utilization:

Be prepared to go to work at scheduled work times.

Have all materials ready and in order when it is time to begin.

Schedule work times with the reader.

Inform readers at the earliest possible time of any cancellations or changes in work schedules.

Have at least one "back-up" reader for emergencies.

Provide suitable lighting when working at their site.

Provide water or other beverage for the reader during "live" readings.

Assure as prompt as possible payment for reader's services, no matter where the funds are coming from.

Reciprocate for any additional services, e.g., rides to classes and elsewhere, by buying some gas, giving cash, or, if these are refused, by giving a small gift.

Provide all necessary materials, e.g., tapes, cassettes, pencils, paper.

Provide training in operating any equipment with which the reader is unfamiliar.

Teach the naive reader the appropriate taping procedures, e.g., page numbering and checking previously used tapes to ensure they do not contain important material prior to using.

To give an example of what is appropriate behavior by not "socializing" during work periods.

To interview so thoroughly that persons unsuited for, or unable to do, the work are not hired.

To be as patient with readers as they would like readers to be with them.

### Characteristics of the Good Reader

The following characteristics were identified as desirable for persons working as readers for the blind and visually impaired:

Responsible: complete work when it is scheduled.

Dependable: meet all scheduled work sessions.

Willing to work for the agreed fee.

Non-directive: permits the blind or visually impaired employer to decide upon the materials to be read, including all parts of the materials.

Literate: able to read and understand at a fairly sophisticated level.

Patient: Blind and visually impaired persons are not always the most efficient people when working with the written word.

Pleasant voice: this will be individually determined by the hirer.

Punctual: Blind and visually impaired people require more time in order to accomplish many tasks. Their schedules are usually quite tight. The late reader can be the cause of needed work just *not* getting done.

Able to vary reading speeds.

Able to type or print legibly.

Amenable to being taped during live reading sessions. This permits the blind person to review the materials at his or her convenience.

Able to function effectively and efficiently in the library.

Able to read to the blind person as opposed to reading to themselves.

Able to summarize the overall content of articles and other materials. This facilitates the blind person's being able to decide on selections of material to be read in its entirety.

Able to describe pictures, graphs, and maps.

Able to underline verbally and summarize at the end of readings.

Able to articulate and enunciate clearly.

Able to put "life" into readings.

Able to scan materials to aid in their acceptance or rejection.

Able and willing to use a thesaurus.

Able to drive and have their own car if this is necessary.

Willing to work "extra" in emergency situations.

Willing to stick through to the completion of started projects.



## Traits of Unsuitable Readers

The following traits were identified as indicating poor potential as readers. As might be expected, they are the converse of the desirable traits:

Irresponsible. Undependable. Unwilling, after a time, to work for the agreed to fee. Directive: feels better able than the blind or visually impaired person to decide what materials are suitable. Illiterate: unable to read and understand at a fairly sophisticated level. Impatient. Unpleasant voice. Tardy. Unable to read at more than a single speed. Unable to type or print legibly. Unwilling to be taped during live readings. Unable to function efficiently and effectively in the library. Unable to read to the blind person: reads to him- or herself. Unable to summarize overall content of materials. Unable to underline verbally and summarize at the end of readings. Unable to enunciate and articulate clearly. Unable to put "life" into their readings. Unable to scan materials to aid in their selection or rejections. Unable or unwilling to use a thesaurus. Unable to drive, or not having their own car, when necessary. Unwilling to work extra in emergency situations. Unwilling to stick through projects that have been begun. Chronic "chatterers" or "socializers." Unable to preclude frequent "emergency" situations in their own lives which interfere with scheduled work. Limited vocabulary.

One final suggestion. Where possible it is not recommended that a family member be used as a full-time reader for blind students or professionals. Such family members will, of course, read various items from time to time. But it usually does not work out well to attempt to place such a person in the "employee" role, and having the reader fill this role seems to be the most beneficial for all concerned.

The author would at this time like to thank the following people for their patience, cooperation, and willing participation in the preparation of this article: M. Block, T. Cooper, C. Eneboe, J. Irvine, and R. Mun-gary.

*Ms. McGary recently received her Master of Science Degree in Rehabilitation counseling from San Diego State University.*

## Abacus Usage in a Rehabilitation Center

### Johnette Bartholomew Weiss

Although the abacus has been used for thousands of years in many parts of the world, it is relatively young in work for the blind in the United States. I began instructing abacus at Arkansas Enterprises for the Blind in 1967. At that time the abacus was taught for only two of the eight daily instructional periods. But in that year something exciting happened at AEB which strongly influenced the future of the abacus. The Taxpayer Service Representative training program began, and it was quickly discovered that the use of basic math would be essential for a person to be successful both in the training program and later in the actual job. Since at that

time there seemed to be no really fast and accurate way of doing basic math for a totally blind person, the abacus was quickly called to order. Trainees immediately began to work to obtain good math skills with the four basic processes, with an emphasis on decimals and word problems, since the Taxpayer Service Representative class would be dealing mainly with word problems involving the use of money. Of course as time passed and a better understanding of what was most needed for the program was discovered, a systematic program of abacus study was developed. A program of the four basic processes divided into levels of problems was adapted. Since problems containing decimals were commonly used, it became easier for the trainees to work with decimals because they were no longer frightened by this type of calculation. In order to accelerate progress, problems were written down and made available for the trainees to work on during both scheduled and unscheduled time. Oral and written tests were designed to evaluate and record progress. Thus the abacus became an important part of the training program at AEB and was taught during all eight of the daily instructional periods.

### Math Skills Greatly Improved

You may wonder just how successful the use of the abacus has been for the TSR candidates. There have been numerous instances where trainees came to the Center using the Perkins Braille, the Taylor Slate, the slate and stylus, or paper and pen to work basic math problems. When their math skills with these tools were evaluated, they often scored only 30, 40, or 50 percent. After a four-month training program with emphasis on the abacus, their math scores would soar to 90 percent or more. They would then be accepted into the TSR training program, during which they would use the abacus successfully; later the trainees would be hired to work for the Internal Revenue Service as Taxpayer Service Representatives in all parts of the United States.

Although the abacus has been in great demand by trainees wishing to enter the TSR training program, many other trainees at Arkansas Enterprises for the Blind have learned to use the abacus. Trainees who wish to become vending stand operators or small business managers need a good understanding and knowledge of the abacus. The abacus is ideal in helping them to keep accurate records of their sales and orders.

Many young people in the summer college preparatory courses wish to become competent with the abacus. While approximately one-half of the young students have gone to the schools for the blind, the others have attended public schools. Some of them, from both the residential and public schools have been introduced to the abacus, but many of them have not. Consequently they want to learn as much about the abacus as they are able during the nine-week summer training program. They realize that the colleges they plan to attend will require some math courses, while other courses not designated as math courses will in fact contain some basic math. Thus they wish to be as prepared as possible. Although their minds are young and quick, they usually do not complete the entire abacus course during the nine weeks.

## Non-Mathematical Uses

The abacus is quite handy for teachers when grading papers. The correct and incorrect answers can be shown on the abacus, using one side of the board to show a correct answer and the other side of the board for the incorrect answer. The abacus is also good for setting telephone numbers until the person can either dial the number or write it in a permanent place. Trainees have also stated that they like to use the abacus to keep domino and card scores on. Housewives use the abacus to balance checkbooks and help prepare the household budget. People often take their abacus boards with them when shopping so that they can have an idea of how much money they are spending. Thus the abacus can provide vocational, personal, and recreational uses. In short, it can be used by anyone, blind or sighted, who needs basic math.

Most of my experience has been with adults, and has shown that the abacus is a good tool with which blind people can work basic arithmetic problems well. It is also my opinion that young blind students in the second and third grades of school should begin an early study of the abacus to help develop their basic math skills. If the blind child begins an early study of the abacus, his or her basic math concepts and skills should develop well. He thus should not have to suffer many of the problems with arithmetic that blind people have previously experienced. His basic math skills should be more in line with those of sighted children.

I believe the popularity of the abacus will continue to grow because of its inexpensiveness, its portability, and because it is easy to learn.

*Ms. Weiss is the abacus instructor at Arkansas Enterprises for the Blind.*

## The First Olympic Games for the Blind

### Dr. Charles E. Buell

The first Olympic Games for the Blind were held in Toronto, Canada, August 3-11, 1976. Over 200 blind athletes from 26 countries participated in the event; 25 athletes represented the United States. The leading countries in winning medals were Canada, 35; Sweden, 23; Great Britain, 15; United States 14; Finland, 13; and Poland, 13.

The competition for the blind was a part of a larger event, the 1976 Olympiad for the Disabled. In addition to the blind, 1100 wheelchair and 300 amputee athletes from 60 countries participated. Competition was limited to divisions: blind against blind, for example. Athletes in each division were classified according to the degree of disability and competed in their classification.

Since 1952 the wheelchair athletes have been competing on an international basis. In 1976 blind and amputee athletes were invited to participate for the first time. The rules and events for this international competition were determined by the International Sports Organization for the Disabled, Stoke Mandeville, England.





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The opening ceremonies for the Olympiad were held at Woodbine Race Track before the largest crowd—19,000—ever to attend the track. These ceremonies were similar to those of the regular Olympic Games. The athletes marched in review, took an oath, and viewed the lighting of the Olympic torch.

### Competition for Blind Athletes

In the official events of the competition for blind athletes, the United States was allotted a quota of twelve, plus a team manager and two coaches. The track, field, and swimming events were official, while distance running and wrestling were demonstration projects only.

Athletes in the official events were required to be 16 years of age or over. Blind competitors were divided into Group A and Group B. Group A included athletes who were totally blind, while those with visual acuity 1/200 to 10/200 were placed in Group B. These rules did not apply to wrestling or distance running since they were demonstration events.

The official events in which the United States athletes participated were 60m and 100m dashes, 1500m walk, standing broad jump, long jump, high jump, shot put, discus throw, pentathlon, and 100m swimming races in freestyle, backstroke, butterfly, and breaststroke. The United States did not enter athletes in the javelin throw, medley swimming, and bowls. Sprinters were required to run one at a time toward a caller. Guide wires or ropes were not permitted. Although unfamiliar with running dashes in this manner, the United States sprinters earned three medals. The United States also fielded a three-man goal ball team which competed against Germany. Since German athletes have been playing the game for 25 years, it is hardly surprising that they won. In goal ball the object of the game is to roll a heavy audible ball past the opponents and over their goal line.

Benjamin Lipton, U.S. representative of the International Sports Organization for the Disabled, selected me to act as the chairman for the U.S. Olympics Team for the Blind; in turn I invited others to help and a Committee was formed. The Committee selected eight male and four female athletes to participate in the official events. During the fall of 1975 the Games were widely publicized in colleges, schools, and agencies for the blind. Results of track meets among residential schools for the blind were largely used as the basis for selection, though some applications from other sources were accepted.

A team of five distance runners was selected by the Committee. They were to compete in a five-mile run against sighted Canadians, 40 years and older. Only five Canadians appeared for the run. They paired themselves with U.S. blind runners. Two Californians, Louis Lucero and Mike Jones, finished the run in 29:32 and 29:44. The next day they ran the 26-mile marathon in about three and a half hours. The blind distance runners clearly demonstrated their ability in the sport.

The Committee realized that there was no fair way to name a wrestling team without holding a try-out camp. Such a camp was held in Louisville at the Kentucky



School for the Blind, July 25 to August 2. Nearly 140 wrestlers were invited; 65 wrestlers and ten coaches from 22 states were able to attend. The benefits gained from the camp for blind wrestlers were similar to those of any wrestling camp. The wrestlers learned much on and off the mat. Most of the campers came from residential schools for the blind, but the college, AAU, and Federation athletes demonstrated their superiority by winning all but three positions on the team. One of the blind wrestlers in camp, James Mastro of Minnesota, had arrived from serving as an alternate, at 198 lbs., in Greco-Roman on the regular U.S. Olympic Wrestling team. Another outstanding wrestler on the team was George Weingeroff, from Indiana, who was invited two years ago to wrestle against the touring Russians. The camp produced the strongest team of blind wrestlers ever put together.

The U.S. blind wrestlers won both of their meets in Canada. In the first meet the U.S. team defeated York University Wrestling Club's sighted wrestlers 21 to 15. The United States team then defeated a team of blind Canadians 29½ to 2½. This meet and much of the Games were televised and filmed.

The United States athletes who won gold

medals in the official events were Winford Haynes, 100m dash, John Bowman, high jump, Linda Schwerdt, 100m backstroke and Rhea Collett, 100m butterfly.

### Funding

Camperships and travel expenses to and from the wrestling camp were largely paid by service clubs in areas where the athletes lived. Travel expenses for distance runners came from the same source. The Canadian hosts paid expenses for our athletes while in Canada. Besides service clubs, contributions were made to the Olympics for the Blind Fund by the American Foundation for the Blind, two other foundations, a fraternal organization, a few schools and agencies for the blind, and by individuals in smaller amounts.

Much money and effort were expended. Was it worthwhile? Those who participated in the Olympic Games for the Blind think so. The blind athletes gained the same benefits as did athletes in the regular Olympic Games. There is much to be gained from months of practice. Then there is the tremendous confidence a person gains from representing his country. By talking with athletes from other countries the United States athletes gained much information and made many friends.

The games did much to promote sportsmanship among groups of disabled individuals in many countries. Thousands of able-bodied people gained a new respect for the handicapped after seeing, reading, and hearing about the Games. In the same manner, thousands of disabled individuals were inspired to work harder to overcome their handicaps. There is little doubt that international competition among disabled athletes has much to offer.

A small group of people is now attempting to interest other individuals in forming a permanent organization to sponsor regional, national, and international competition among blind athletes. Any such organization must be recognized by the International Sports Organization for the Disabled. Benjamin Lipton, president of the National Wheelchair Athletic Association, has been helpful in suggesting guidelines.

If a reasonably secure source of funds can be found, a permanent organization of blind athletes and their supporters will surely become a reality. Individuals who are willing to give time and funds are invited to become a part of it.

*Dr. Buell was chairman of the U.S. Olympics for the Blind.*

## Review

### Visual Handicaps and Learning: A Developmental Approach

By Natalie C. Barraga. Belmont, Ca: Wadsworth Publishing Co., 1976.

### Reviewed by Pat Carpenter

Dr. Barraga uses a case book approach to enter the world of the child with a visual impairment and to discover how that visual impairment impinges upon the child's learning and development. (The terms "learning" and "development" are used interchangeably.) The book is directed to special education students, vision specialists, and others who must come to view limitations in visual capacity from a "total perspective of human development."

In the first chapter we meet Carl, Lucy, Dora, and Keith, four children with visual impairments. A vignette for each of the four children offers a composite representation of a child who might be on any teacher's case load. All four provide the framework upon which the remaining chapters of the book are based. The definitive characteristic is the ability to see or not to see. The approach is positive and optimistic.

Carl is a totally blind three-year-old who uses his other senses well. He has thought-

ful parents with a positive outlook toward his activities and experiences. Lucy, a two-year-old, is a low vision child who uses her vision better than one would expect, considering her limitation. Dora is a ten-year-old whose vision is deteriorating rapidly as a result of a hereditary problem. Keith has been blinded as the result of an accident. The frustrations and adjustments of the parents are mentioned in passing, but the emphasis is upon their ability to cope with the problems presented by their children. As a foundation for the book, the schema works well: two boys, two girls; two preschoolers, two in school; two with congenital impairments, one with a gradual decline in vision, and one who loses his sight in a sudden traumatic accident.

A discussion of terminology defines precisely the terms which are used throughout the book. A plethora of terms, contradictorily and inconsistently used over the years to describe educational programs and the children they serve, is discussed. Barraga brushes these aside, replacing them with an excellent definition: "A visually handicapped child is one whose visual impairment interferes with his optimal learning and achievement, unless adaptations are made in the methods of presenting learning experiences, the nature of the materials used, and/or in the learning environment."

### Psychomotor and Cognitive Development

A discussion of development in the affective, psychomotor and cognitive domains, draws from the work of Erikson, Hunt, Montessori, Murphy, and Piaget in

examining the early interactions of the visually handicapped child and "his affective development as it relates to and . . . establishes the bases for his psychomotor and cognitive development." What happens to the child within his own family with his parents and siblings as his first teachers is critical to his future learning. "When vision is present, it is the first sense to make contact with the environment beyond the body itself . . . Sensorimotor development proceeds with greater rapidity when the reciprocal action between vision and movement is optimal . . . for children who are blind or have low vision, movement may be the most accurate replacement in clarifying information about the world." Dr. Barraga suggests that it may be possible that carefully designed physical movement "could facilitate the same quality of psychomotor development as that achieved by children who have both vision and movement."

### Critical Needs

Emphasis is placed on alternate ways of programming experiences and developmental learning activities for the visually handicapped and for the child with multiple impairments in addition to low vision. Human relationships, sensory awareness and stimulation, movement, self care, language, and communication are critical needs. The need for recreation, and good work habits demand our recognition. These needs cannot be put off till the future; for these children the future is right now.

In the last chapter, Dr. Barraga throws out a heartfelt challenge to all profes-



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sionals working with visually handicapped and multiply impaired children, but especially to the teachers. Her first priority is for clarification of the terminology used to describe the things we do and the people we work with. The need for early intervention to help parents and their children as soon after birth as possible, and the need to accept the child with multiple impairments in educational planning and programming are cited too. For all these children there is a need to translate and apply to visually handicapped children and youth the information that has been gained through psychological and educational research into human learning and perceptual-cognitive processing.

In this concise volume, Dr. Barraga provides some answers, but she has also provoked some questions. She has channeled her thoughts to the reader and demanded answers based on present knowledge and future research. The informed viewpoint is her own, based on personal experience, study, observation, and research. The book is well written and provides valuable current information. An excellent list of current references is included, the majority of which are written within the last ten years.

*Ms. Carpenter is the director of the Georgia Center for the Multihandicapped and a consultant on the visually impaired, DeKalb County Schools.*

## Letter to the Editors

To the Editors:

The review of my book *The Changing Status of the Blind: From Separation to Integration* (reviewed by Warren Bledsoe in *The New Outlook for the Blind*, September, 1976, pp. 311-12) includes the following sentence: "In 1946 at the A.A.W.B. Convention, he urged upon his hearers the necessity to close residential schools 'tomorrow'." Only to set the record straight and without yielding to the temptation to debate other points of the review, I want to state:

1. There was no A.A.W.B. Convention held in 1946. (Until 1948 Conventions of the A.A.W.B. were only held in uneven years.)

2. I never urged, advocated, or considered it desirable that residential schools for the blind be closed. Those who are interested in my frame of mind some 30 years ago, may want to read the papers I delivered at the 1943 and 1947 Conventions of the A.A.W.B.—no Convention was held in 1945 due to wartime—in which my concern for improving services rendered by residential schools belies any contention that I urged them to be closed.

*Berthold Lowenfeld  
Berkeley,  
California*

## Current Literature

*A report of significant new additions to the M. C. Migel Memorial Library of the American Foundation for the Blind, prepared by Elaine M. Siegel, librarian. These materials may be borrowed from the library.*

### Aging

**Beginning a Brighter Life**, by Patricia Cobe. *Forecast for Home Economics* (902 Sylvan Avenue, Englewood Cliffs, New Jersey 07632), Vol. 20, No. 7, March 1975, pp. F-33, F-40-F-42. Description of the Activities for Daily Living Program of the Center for Independent Living, the New York infirmary's pilot project serving the elderly blind of the New York metropolitan area. Approximately 16 students at a time can receive services at the residential facilities; an average three-month stay plus follow-up services are designed to enhance students' self-sufficiency as well as reintegration into family and community. Lessons are organized by instructional objectives, on a schedule tailored to individual goals.

### Attitudes Toward Blindness

**Attitudes of the American Public Toward the Blind**, by Bertrand Chombeau. *Dialogue With The Blind* (Dialogue Publications, Inc., Berwyn, Illinois 60402), Vol. 15, No. 2, Summer 1976, pp. 18-23. Review of the persistent superstitions and stereotypes associating blindness with a compensatory sixth sense, the beggar or genius syndrome, loss of manhood, punishment for evil, and unsuitability for employment, education, or social integration, accepted by much of the sighted (and some of the blind) public. The author also reports on research conducted at California Western University in 1965. The students surveyed did not subscribe so universally to these commonly held notions, possibly indicating a shift in attitudes concerning the visually handicapped.

### Biography

**House Without Windows**, by Ray and Gloria Sewell as told to Renate Wilson. Peter Martin Associates Limited (35 Britain Street, Toronto, Canada M5A 1R7), 1974, 231p. \$9.95. Autobiographical account by two blind Canadians: Gloria Mortimore—blind from childhood, college educated, employed as a home teacher and field secretary by the Canadian National Institute for the Blind and later as a social worker for other agencies—and Ray Sewell—blinded as a young man in an automobile accident, trained by Gloria for the position of field secretary, which he eventually assumed, and later a CNIB standkeeper. The book describes their romance and ensuing marriage and their professional careers, with the accompanying problems, frustrations,

and joys. Much consideration is given the dominant role of the Canadian National Institute for the Blind in the adjustment training, education, rehabilitation, and employment of the visually handicapped in Canada.

### Early Childhood

**Visual Handicaps & Learning; A Developmental Approach**, by Natalie C. Barraga. Wadsworth Publishing Company, Inc. (Belmont, California 94002), 1976, 113p. \$3.95. Intended for special education students and vision and/or eye specialists. The emphasis is on developmental and learning processes, with discussions centering on how affective, psychomotor, and cognitive responses are influenced by the type and extent of visual handicap. Among the topics covered are historical and current terminology, affective development, movement and spatial awareness, the multiply impaired, tactual, auditory, and visual development and learning, differential programming and educational media, and assessment.

**Preschool Learning Activities for the Visually Impaired Child; A Guide for Parents**. Illinois State Board of Education (Office of Education, 100 North First Street, Springfield, Illinois 62777), [July 1975], 100p. Illustrated booklet including games, activities, and materials specific to three-, four-, and five-year-old visually handicapped children. The activities are listed according to the types of skills they are intended to develop. A section on the use of residual vision is included. Also listed are agencies offering services to blind children and their parents, suggested readings, and a brief glossary.

### Deaf-Blind

**Play, Recreation and Leisure for People Who Are Deaf-Blind**, edited by John A. Nesbitt. University of Iowa (College of Liberal Arts, Recreation Education Program, Iowa City, Iowa 52242), [1975]. 45p. Based on Papers and Proceedings of the National Institute on Program Development and Training in Recreation for Deaf-Blind Children, held April 29-May 1, 1974 at the University of Iowa. The Institute was organized by the Recreation for the Deaf-Blind Project of the University's Recreation Education Program, and sponsored by the Bureau of Education for the Handicapped, U.S. Office of Education. Over forty papers present participants' viewpoints on such topics as guidelines for play, recreation, and leisure activities programming, consumerism and advocacy, evaluation, and administration.

### Education

**Open Education Handbook for Teachers of the Blind**, by Geoffrey Salisbury. Centre for Educational Development Overseas (Royal Commonwealth Society for the Blind, Commonwealth House, Haywards Heath, Sussex, RH16 3AZ, England), 1974, 58p. The author is Director (Overseas) of the Royal Commonwealth Society for the Blind, and a pioneer in the field of open (integrated) education in Asia and Africa.



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## History

**Freedom From Darkness . . . Two Centuries of Progress.** *The Seer* (Pennsylvania Association for the Blind, 2843 North Front Street, Harrisburg, Pennsylvania 17110), Vol. 47, No. 1, Bicentennial Issue, 1976, pp. 1-44. This special issue presents an historical overview of work for the blind and deaf-blind in the United States. Segments deal with the beginning of American education for the blind, reading systems, education for the deaf-blind, the growth of ophthalmology, federal and state governmental assistance, and other sources of aid. Special coverage is given to the history of the Pennsylvania Association for the Blind.

## Legislation

**Blind Juror Bill Adopted in Washington,** by Ed Foscue. *The Braille Monitor* (National Federation of the Blind, 2652 Shasta Road, Berkeley, California 94708), August 1976, pp. 370-372. The author, Legislative Chairman of the National Federation of the Blind of Washington, reports on their efforts culminating in the 1975 passage, by the Washington State Legislature, of a bill guaranteeing that a Clerk of Court cannot deny a person the right to serve on jury panels solely because of blindness to any degree. He describes the three-year process—the introduction and defeat of the original bill, re-introduction of the bill, gathering of support from key individuals and organizations throughout the state, and getting the bill through the House Judiciary Committee, Senate Rules Committee, House of Representatives, and the Senate.

## Mentally Retarded Blind

**A Survey of Program Services for Blind Mentally Retarded Children in Residential Facilities in the United States,** by Maurice Isadore Tretakoff. Doctoral Dissertation, Columbia University Teachers College, 1974, 268p. Report on survey involving 305 residential facilities for the blind and for the mentally retarded in the United States. The objectives of the survey were to assess medical, therapeutic, educational, psychological, social, speech and hearing, chaplaincy, recreational, residential, volunteer, and research services provided, and to determine the prevalence, by chronological age, intelligence, and sex, of the blind mentally retarded in such facilities. Copies are available from: Xerox University Microfilms, Dissertation Copies, P.O. Box 1764, Ann Arbor, Michigan 48106 (\$15 for academic libraries, \$20 for others).

# Publications of Note

*A classified listing of books, articles, directories, pamphlets, and other material of interest to the readers of the New Outlook for the Blind, prepared by the editors. Please write to the source listed in each entry if copies or more information is desired; the materials are not available from the New Outlook or the American Foundation for the Blind.*

## Attitudes and Adjustment

**Faculty Attitudes Toward Handicapped Students,** by Joseph Newman, Ph.D. *Rehabilitation Literature* (National Easter Seal Society, 2023 W. Ogden Ave., Chicago, Ill. 60612), Vol. 37, No. 7, July 1976, pp. 194-197. The faculty members of the University of Pittsburgh were given questionnaires to determine their attitudes toward admitting handicapped students into the school system. The response of the survey for departmental policy showed that 60 percent favored an open policy for their department; 38 percent a limited policy; and 2 percent a closed policy. The faculty members were also asked to check on a list of eight those handicapping conditions that might require admission restriction. Blindness was thought by an overwhelming majority (86 percent) to be the most handicapping condition for college work. The percentages for the other categories were: deafness, 59 percent; paralysis, 58 percent; cerebral palsy, 54 percent; muscular dystrophy, 51 percent; body deformation, 12 percent; and skin disorder, 5 percent.

## Children

**The Parents' Role in Optometric Vision Therapy,** by J. Baxter Swartwout, O.D. *Optometric Weekly* (The Professional Press, 6th Floor, 101 E. Ontario St., Chicago, Ill. 60611), Vol. 67, No. 28, July 8, 1976, pp. 52-55. Parents play a significant role in a child's development and in shaping his environment. It is therefore essential that parents be involved in their child's vision therapy program from the beginning. Involvement in the program will help parents to see the relationship between the child's visual problems and his ability to function, particularly at school. They will also be able to reinforce the vision training in the home environment.

## Diabetes

**Some Plain Talk on Diabetic Retinopathy,** by Stuart L. Fine, M.D. *The Sight Saving Review* (National Society to Prevent Blindness, 79 Madison Avenue, New York, N.Y. 10016), Vol. 46, No. 1, Spring 1976, pp. 3-9. Discusses briefly, in a question and answer format, what is currently known about the development, effects, and treatment of diabetic retinopathy.

## Education

**College Education for the Severely Disabled,** by John Hessler. *American Rehabilitation* (Rehabilitation Services Administration, 330 C Street, S.W., Washington, D.C. 20201), Vol. 1, No. 5, May-June 1976, pp. 29-33. The author discusses some of the special problems for a disabled student on a college campus (such as architectural and attitudinal barriers, the need for attendants or readers, housing, and mobility), and how various colleges across the country have solved them.

## Legislation

**Vocational Rehabilitation—The New Law and its Implication for the Future,** by Martin L. LaVor and Jack G. Duncan. *Journal of Rehabilitation* (National Rehabilitation Association, 1522 K Street, N.W., Washington, D.C. 20005), Vol. 42, No. 4, July-August 1976, pp. 20-28, 39. In March 1976 Congress extended the existing Rehabilitation Act for two more years. At the time of the extension no changes were made in the Act. This simple extension will give both houses time to re-evaluate the changes made in the Act in 1973 and to consider some of the problems that have come up in recent years. One major problem, as reported by the states implementing the Act, is the lack of an adequate definition of the "severely handicapped" who are to receive priority services. In recent years there has also been a conflict between the Rehabilitation Services Administration and the states regarding how state delivery systems should be set up. As the Act is written, states must have one agency implementing the Act, whether or not that is the most efficient way to handle it.

## Professional Education

**Authors Guide to Journals in Psychology, Psychiatry, and Social Work,** edited by Allan Markel, Ph.D. and Roger C. Rinn, Ph.D. The Haworth Press (174 Fifth Ave., New York, N.Y. 10010), 1976. 225p. \$12.95. The *Guide* provides such information as topics the editors usually accept or reject, journal circulation, publication lag time, where the journal is indexed or abstracted, and correct submission address.

## Publications

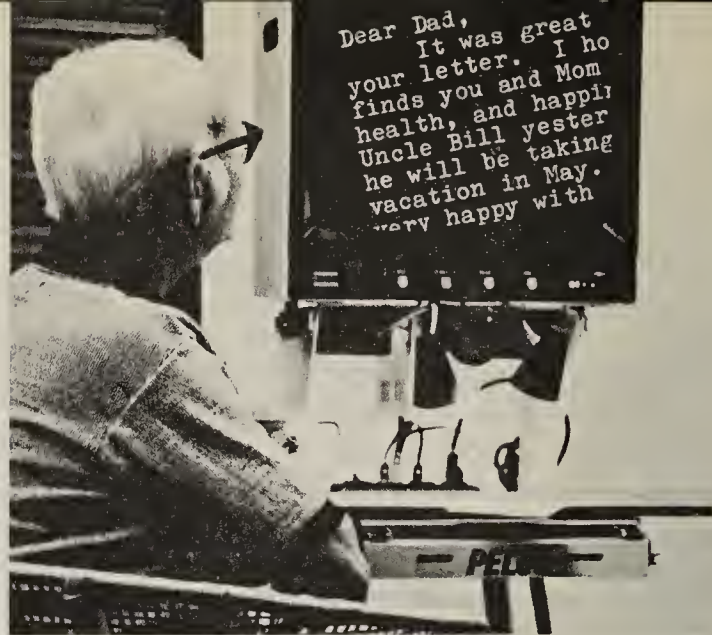
**Mental Disability Law Reporter.** American Bar Association Commission on the Mentally Disabled (1800 M Street, N.W., Washington, D.C. 20036), bimonthly. Subscription: \$35.00 per year. Will include detailed information (in some cases reprints of the complete text) of current legislation and court decisions affecting mentally handicapped persons.

**When It's Hard to See,** by Susan C. Farkas, photographed by Steven York. Vision Program of the Prince George County Public Schools (Capitol Heights Special Center, 6037 Central Avenue, Capitol Heights, Maryland 20027), 1975. A children's picture story book developed to help the young child understand the special problems of visually impaired children and the skills they learn to overcome them.



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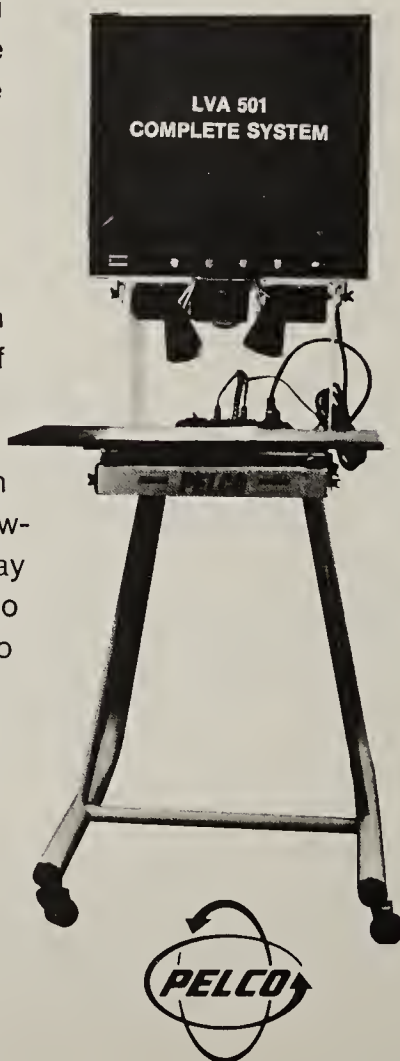
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## Research

**Experimental Rigor in Rehabilitation Research: Fact or Fantasy?** by Paul Wehman. *Journal of Rehabilitation* (National Rehabilitation Association, 1522 K Street, N.W., Washington, D.C. 20005), Vol. 42, No. 3, May-June 1976, p. 39. A survey of the articles appearing for the last ten years in four rehabilitation research journals (*Rehabilitation Literature*, *Journal of Rehabilitation*, *Social and Rehabilitation Record*, and *Rehabilitation Counseling Bulletin*) revealed that their subject matter was predominantly theoretical rather than applied research. As the author points out, the research journals most widely read by counselors are not publishing applied research which can be specifically useful in developing client training programs.

**Gatekeepers and the Social Control of Social Research**, by Robert S. Broadhead and Ray C. Rist. *Social Problems* (114 Rockwell Hall, State University College, 1300 Elmwood Avenue, Buffalo, N.Y. 14222), Vol. 23, No. 3, February 1976, pp. 325-336. Increasing concern has been expressed over the way sponsorship of re-

search by various governmental agencies and private foundations has influenced the objectivity of scientific investigations. A key component of the control effort over research is the small group of managers and administrators within an organization, called "gatekeepers," who screen prospective researchers seeking funding, entry into the organization, or access to data already collected. This article provides an analysis of how the gatekeepers are able to exercise control during the various stages of research, from the beginning to the final interpretation and form of the analyzed data.

**The Ethics of Experimentation with Human Subjects**, by Bernard Barber. *Scientific American* (415 Madison Avenue, New York, N.Y. 10017), Vol. 234, No. 2, February 1976, pp. 25-31. Research with human subjects has produced advances in medicine but also some instances of ethical abuses. Studies of the attitudes and practices of investigators suggest that better controls are required.

### Vision

**Application of Biofeedback and Behavior Modification Techniques in Visual Train-**

ing, by Jacques E. Letourneau. *Journal of Optometry and Physiological Optics* (School of Optometry, University of California, Berkeley, Ca. 94720), Vol. 53, No. 4, April 1976, pp. 187-190. During the last five years biofeedback has been used to teach subjects control of their physiological processes, such as cardiac rate, blood pressure, and skin temperature. The author suggests in this article that biofeedback be used with patients who are undergoing visual training. To do this, electromyograph units can be connected to an apparatus which gives a reward when the patient performs proper eye movements.

**Optometric Examination of the Infant**, by William D. Dellande, O.D., M.A. *New England Journal of Optometry* (New England Council of Optometrists, 101 Tremont Street, Suite 608, Boston, Mass. 02108), Vol. 27, No. 6, June 1976, pp. 193-199. Discovering refractive and binocular problems early in a child's life can prevent the onset of strabismus and detect the need for any rehabilitative measures. When necessary, infants can be examined as young as six-months using procedures that are essentially non-verbal and objective.

## News in Brief

■ A more accurate method of monitoring blood sugar levels in diabetics has been developed by a team of medical researchers at Rockefeller University, New York. The problem with present methods, which test blood and urine, is that they indicate sugar levels only at the time of the test. Because blood sugar levels fluctuate widely each day, such methods give relatively imprecise measures, unless carried out almost daily. This makes it very difficult to gauge the effectiveness of therapy for diabetics—of whom there are some 10 million in the United States. The Rockefeller University team's technique measures the levels of one type of hemoglobin—the molecule in the blood that transports oxygen around the body. Since the levels of this substance fluctuate relatively slowly in response to changes in blood sugar concentrations, a single hemoglobin measure indicates the average amount of blood sugar. In this way it shows how effective the patient has been in controlling the disease over the previous weeks or months.

Another possibility is that the technique will yield further information about how diabetics metabolize sugar. In turn, this knowledge may indicate how blood sugar levels correlate with other complications of diabetes, such as vascular proliferation in the retina.

The research was conducted with the cooperation of five hospitalized diabetics and 30 diabetic outpatients. Details are given in the August 19th, 1976, *New England Journal of Medicine*.

■ *Ideas and Help, Too* is a package of information about 25 ideas that have been used successfully by librarians in serving handicapped children. The ideas are intended for beginners and do not require expensive equipment. Compiled for a series of HELP workshops (Help Extend Libraries to People with Handicaps) held by the State Library of Ohio and Case Western Reserve University in February and March 1976, the package is available for \$1.75 from the Accounting Department, The State Library of Ohio, 65 South Front Street, Columbus, Ohio 43215. Checks should be made payable to The State Library of Ohio.

■ The regional libraries in the DBPH's network reached a total of 56 this summer, with the opening of the Alaska library on July 1st, and the Vermont library on August 1st. This is the highest total in the 45-year history of the Library of Congress national library program. All but two states, North Dakota and Wyoming, now have at least one regional library within their borders. Close to 300 readers are at present being served by the Alaska regional library, and 500 more people are believed to be eligible. Some 1,200 readers are taking advantage of the Vermont library's services, while over 16,000 Vermonters are thought to be eligible for the program of free library services.

■ Educational Record Sales, 157 Chambers Street, New York, N.Y. 10007, now has available two new catalogs, one for the primary and intermediate grades and one for the secondary grades. Each has more than 100 pages and lists records, cassettes, filmstrips, books, and transparencies in all subject areas. The catalogs are available free to educators upon request.

■ The York County Blind Center, Pennsylvania, has become the 31st branch of the Pennsylvania Association for the Blind. The new branch will continue to operate a sheltered workshop, a home employment program, and radio reading services, and to provide counseling and rehabilitation services to its clients.

■ *Publicity Tips*, a guide for small agencies on how to get media coverage, is a new periodical of the President's Committee on Employment of the Handicapped (Washington, D.C. 20210). The first issue of the guide is concerned with placing articles in the papers; each successive issue will deal with a different topic. Subscriptions are free of charge.

■ The new Alafamua School in Western Samoa is remarkable for two reasons: It is the first school for blind children—in fact for any handicapped children—in the country, and a blind California woman, DeAnna Noriega, 27, helped to set it up. Mrs. Noriega and her husband, Curtis, are both Peace Corps Volunteers assigned to the Western Samoa Association for the Blind, a small voluntary community organization. Mrs. Noriega taught the teachers braille and other educational techniques they would need to know to teach blind children. She also developed braille teaching materials that enable the children to read and write in Samoan and English, the country's two languages. Mr. Noriega handles the administrative side, and the couple devote their afternoons to "endless rounds of meetings with government and public people" to get the donations, services, and materials needed by the school.



■ The North Central Technical Institute, Wausau, Wisconsin, is now using a specially programmed computer to print braille material, such as bus schedules, telephone directories, reference works, and study aids, that are vital to blind and visually impaired people on the job and possession of which may mean the difference between success and failure. The Institute's Braille Print Center was developed with the help of funds obtained under the Federal Vocational Education Act of 1968, and a state grant from the Wisconsin Board of Vocational, Technical and Adult Education. It uses an IBM/370 Model 115 which is capable of producing a page of Grade II braille in six seconds. The system can prepare braille documents from a variety of sources, including typed copy, magnetic tape, and punched cards. The service is being offered to visually impaired people across the United States.

■ The White House Conference on Handicapped Individuals has announced the formation of a joint Industrial-Labor Council. The Council is headed by John Opel, president of International Business Machines, Inc. and George Meany, president of the American Federation of Labor-Congress of Industrial Organizations. The purpose of the Council is to open the lines of communication between disabled persons and the private sectors of business and organized labor.

■ A device for communicating with deaf-blind persons, which makes use of the Morse Code, has been developed by ITT Creed, Ltd. Still in the prototype stage, the device is a printed circuit board which has a stylus and battery-operated vibrator attached to it. Letters and numbers are printed on the left side of the board. When they are pushed with the stylus the appropriate Morse signal is transmitted through the vibrator to the deaf-blind person.

■ An *International Bibliography* of travel guides for disabled persons has been compiled by Rehabilitation International (% Stiftung Rehabilitation, 6900 Heidelberg 1, P.O. Box 101 409, Federal Republic of Germany). Copies of the bibliography are available free of charge.

■ Health education literature is available in braille from Braille Volunteers of Huntington (P.O. Box 9422, Huntington, W. Va. 25704). Included are pamphlets from the Arthritis Foundation, American Diabetes Association, and the American Heart Association. For a complete listing and price information write to Braille Volunteers at the above address.

■ On June 30 the Federal District Court in Atlanta, Georgia passed a ruling that a state rehabilitation agency may not categorically refuse to make maintenance payments to a client who is living at home while he is receiving rehabilitation services. However, the court has stayed enforcement of the decision until the state agencies have had time to consult with the Department of Health, Education, and Welfare about alternate policy guidelines.

■ France recently passed a law, to be enacted progressively through 1977, which provides guidelines for the improvement of social benefits to handicapped persons. Included in the law are provisions for the education of all handicapped children (with the state assuming the burden of financial responsibilities); the establishment of a guaranteed minimum income for all employed handicapped persons; the payment of special compensation to handicapped persons who require attendance or who incur special expenses because of their professional activities; and a system of insurance/sickness/maternity benefits for non-employed handicapped persons.

■ A new president, treasurer, vice presidents and Council were elected by the governing bodies of Rehabilitation International at recent meetings held in Tel Aviv, Israel.

Serving through 1980 will be: Mr. Kenneth T. Jenkins of Australia, President; Mr. Fenmore R. Seton of the U.S.A., Treasurer; Dr. the Hon. Harry S.Y. Fang of Hong Kong, Dr. F.A.O. Owosina of Nigeria, Dr. Teresa S. Serra of Italy, Dr. S. Sheikholeslamzadeh of Iran, Dr. Luis F. Vales Ancona of Mexico, and Mrs. William J. Walsh of the U.S.A., all vice-presidents.

## APPOINTMENTS

■ National Accreditation Council for Agencies Serving the Blind and Visually Handicapped: **Ann F. Barber**, staff associate for accreditation.

■ Pennsylvania Governor's Committee on Employment of the Handicapped: **Rudolph V. Lutter, Jr.**, liaison between business community and handicapped workers.

## AWARDS

■ The NAC Award, National Accreditation Council for Agencies Serving the Blind and Visually Handicapped: **Peter J. Salmon**, former president of NAC.

■ Ambassador Award, American Council of the Blind: **Roy Kumpe**, executive director of Arkansas Enterprises for the Blind.

■ Takeo Iwahashi Award, World Council for the Welfare of the Blind: **Keshmahinder Singh**, ophthalmologist.

## DEATHS

■ **Dr. Alfons Gottward**, 71, founder of the Association of German Blind, on April 3, 1976.

## COMING EVENTS

### January

**24-26** National Braille Association, Regional Meeting, Kansas City, Mo.

### March

**1-4** World Council for the Welfare of the Blind, Executive Committee Meeting, Riyadh, Saudi Arabia.

**20-25** XI Pan American Congress of Ophthalmology, Santiago, Chile.

### April

**14-16** European Regional Committee of the World Council for the Welfare of the Blind, Technical Aids Conference, London, England.

### May

**25-29** White House Conference on Handicapped Individuals, Washington, D.C.

**30-June 1** American Ophthalmological Society, Hot Springs, Va.

### June

**18-23** American Medical Association, Annual Convention, San Francisco.

### September

**25-Oct. 8** American Academy of Ophthalmology and Otolaryngology, Dallas.

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## AIDS AND APPLIANCES

Map kits and Handbook—For details contact: Dr. G. A. James, Blind Mobility Research Unit, Department of Psychology, University of Nottingham, Nottingham NG7 2RD, United Kingdom.

New Talking Electronic Calculator—the SPEECH PLUS™ from TSI is now available. Verifies all keystrokes and answers with 24 words from earphone or self-contained speaker. It is hand-held, rechargeable, and functions include percent, square root, memory, and automatic constant for easy 1/x and x2 calculations. \$395.00 from either AFB or TSI. For more information contact: Telesensory Systems, Inc., 1889 Page Mill Road, Palo Alto, California 94304, (415) 493-2626.

## PERSONNEL

### Situations Available

Position open: Social worker with a masters degree and a minimum of 5 years experience in direct service to the blind and visually handicapped. Salary open. An affirmative action equal opportunity employer. Send resume to Donald G. Norwood, executive director, The Toledo Society for the Blind, Inc., 1819 Canton St., Toledo, OH 43624.

One orientation & mobility/itinerant teacher vacancy, Montgomery County Public Schools, dual certification required. Contact: Dr. Rosemary O'Brien, 850 N. Hungerford Drive, Rockville, Md. 20850, (301) 279-3407.

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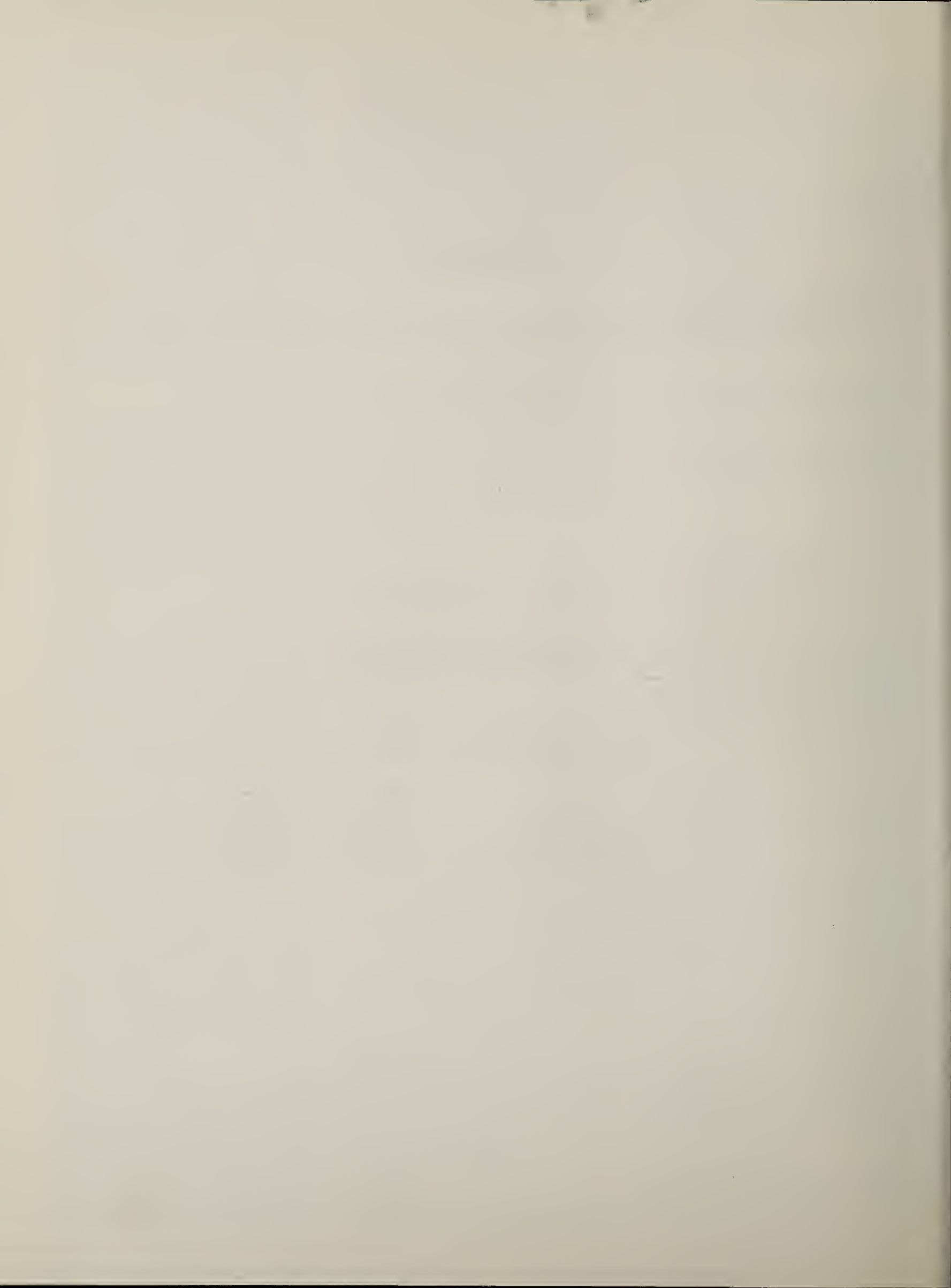
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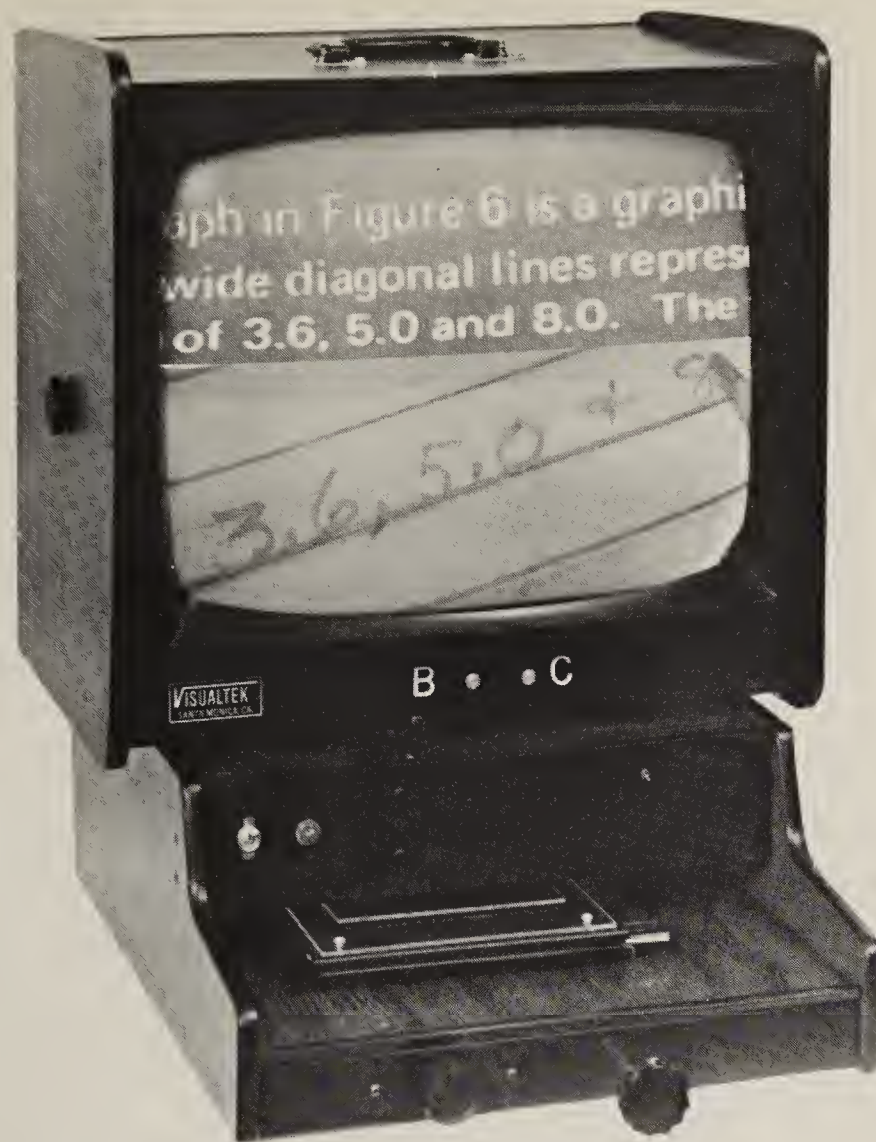


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